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August 10, 2015

Ms. Karen Deibert
Radiation Control Program
Division of Air Quality
North Dakota Department of Health
918 East Divide Avenue – 2nd Floor
Bismarck, ND 58501-1947

RE: Radioactive Material License Application
Renewable Resources, LLC
Killdeer, North Dakota
Wenck File #2522-10

Dear Karen:

Renewable Resources, LLC (Renewable Resources) is providing the following supplemental information to the North Dakota Department of Health (NDDH) in support of an application for a Radioactive Material License for technologically enhanced naturally occurring radioactive materials (TENORM) management. This license will allow Renewable Resources to manage TENORM from various oilfield clients at their facility in Killdeer, North Dakota (Figure 1). The information presented herein is formatted to correlate to the SFN 8418 (10/12) radioactive materials license application form found as Attachment 1.

1. **License Type**
   A. New License (TENORM)

2. **Name and Mailing Address of Applicant (include Zip Code)**
   Renewable Resources, LLC
   P.O. Box 657
   Killdeer, ND 58640

3. **Address where Licensed Material will be Used or Possessed**
   Renewable Resources, LLC
   10658 1st Street Northwest
   Killdeer, ND 58640

4. **Name of Person to be Contacted about this Application**
   Shawn Kluver, Owner, Renewable Resources, LLC

   Business Telephone Number
   (701) 764-6749

   Business Cell Phone Number
   (701) 690-0777

   Business Email Address
   shawn@wastedirt.com

5. Radioactive Material

a. Element and mass number;

Oilfield TENORM - Radium-226 and Radium-228

b. Chemical and/or physical form;

Oilfield TENORM-impacted waste from Resource Conservation and Recovery Act (RCRA)-exempt exploration and production (E & P), including tank bottoms, spill material, and surface-contaminated process equipment.

c. Maximum amount which will be possessed at any one time

Table 1- Maximum Amount Possessed at One Time

Element and Mass Number	Maximum Amount Onsite
Ra-226	100 Ton
Ra-228	100 Ton

6. Purpose(s) for which Licensed Material will be used.

Renewable Resources processes, treats, and recovers resources from upstream oil and gas waste streams, which often contain TENORM impacted materials. As part of the ongoing processes at the facility, Renewable Resources will segregate and consolidate first and third party TENORM impacted materials, for licensed TENORM disposal off-site at an approved facility.

Renewable Resources will only temporarily manage TENORM waste at the facility. All waste materials are screened for radioactivity at the site upon arrival. Any waste materials screened and found to be at concentrations more than twice above background radiation levels will be rejected from the facility. For additional information on waste acceptance, please refer to Renewable Resources' "Plan of Operation" and waste acceptance procedures in Attachment 2.

7. Individual(s) Responsible for Radiation Safety Program and their Training Experience.

Aaron Havens, RSO
Adam Pauley
Alan Stephen
BJ Simons

Table 2- Training and Experience

Type of Training	Course Name and Location Trained	Duration of Training	On the Job		Formal Course	
			Yes	No	Yes	No
40-Hour NORM Radiation Safety Officer Training Course	Norm Solutions, LLC. – RSO Training Watford City, ND	40 hour + On the job	X		X	

8. Training for Individuals Working in or Frequenting Restricted Areas.
Training related to TENORM will be organized as follows, for Renewable Resources employees:

- Awareness Training will be provided to all Renewable Resources personnel employed at the facility.
- Technician Training will be provided to all Renewable Resources personnel who are working directly with materials that could be impacted by NORMs. This training includes an understanding of radiation instrumentation, surveying, sampling and monitoring practices.
- Supervisor Training will be provided to all Renewable Resources personnel that work directly with materials that could be impacted by NORMs and have waste management responsibilities. This training will also include Department of Transportation (DOT) training for TENORM waste.
- Radiation Safety Officer Training will be provided to Renewable Resources personnel that will oversee the radiation safety training, and other related issues, on a day to day basis. This person(s) will be the in-house Subject Matter Expert (SME) with regards to TENORM.

This will provide guidelines to ensure that:

- Workers are protected;
- Employees and workers are fully knowledgeable of the correct procedures to be followed;
- The environment is protected from potential contamination; and,
- TENORM impacted materials are managed within all applicable regulations.

Renewable Resources' Radiation Safety Program can be found as Attachment 3 and the Emergency Response Plan as Attachment 4.

9. Facilities and Equipment

Table 4 - Facilities and Equipment

Facility	Equipment Location	Equipment
Renewable Resources, LLC – Killdeer Treating Plant	Thermal Treatment Building	3- Storage Silos Bagging Silo 2-Baghouses Screener Tower 2-Oil Water Separators 2-Scrubbers 5-Heat Exchangers 4-Knock-outs 5-Freshwater Tanks Crude Oil Tank Drum Dryer (100 MMBtu/Hr Direct-Fired) Drum Dryer (6 MMBtu/Hr Indirect-Fired)
	Thermal Treatment Building (Cont.)	Control House Oil Heater Pump System Oil Heater Chiller Conveyors Secondary Containment Leak Detection System
	Waste Storage Building	2-Hoppers Conveyors Leak Detection System
	Fluids Processing Building	2-Heavy Solids Off-load Tanks Processing Tank Shaker Vac Drum Process Filtering Equipment 4-Process Frac Tanks 3-Upright Freshwater Mud Tanks 7-Upright Process Water Tanks Upright Crude Oil Tank Upright Freshwater Tank
	Outdoors	Drum Dryer (40 MMBtu/Hr Direct-Fired) Scale/Office Building

Proposed Site layouts are provided in Attachment 5.

Table 5 -Radiation Detection Instruments

Type of Instruments	Number Available	Type of Radiation Detected	Sensitivity Range (mR/hr)	Window Thickness (mg/cm^2)	Use (monitoring, surveying or measuring)
SEI Inspector USB GM Pancake Tube	2	Alpha, Beta, Gamma, X	.001-100 mR/hr	1.4-2.0 mica	Portable survey instrument with GM probe for contamination monitoring
SEI Monitor 4 USB GM Pancake Tube	1, as backup	Alpha, Beta, Gamma, X	0-50 mR/hr	1.5-2.0 mica	Portable survey instrument with GM probe for contamination monitoring

10. Radiation Safety Program

The Renewable Resources' Radiation Safety Program is provided in Attachment 3.

11. Waste Management

An Industrial and Special Waste Acceptance Plan has been developed for the facility in conjunction with the request for permit renewal/modification and should be used in accompaniment with the Plan of Operations (Attachment 2). The waste acceptance procedures set forth in the plan are intended to provide sufficient procedural guidelines and requirements to assure compliance with the current rules and regulatory requirements of the Renewable Resources - Solid Waste Management Permit. The Operator shall be familiar with the plan and the basic rules for determining the exempt or nonexempt status of oil and gas wastes, as published by the U.S. EPA. Primarily, exempt wastes from RCRA Subtitle C Regulations will be permitted at this Site. Non-exempt special wastes may also be accepted, if they pass the testing and acceptance criteria set forth in the Waste Acceptance Plan.

Unacceptable wastes include municipal solid waste, medical waste, or any other material not identified in the approved waste acceptance plan and the list of NDDH or NDIC-approved wastes. Waste acceptance and waste rejection procedures, as adopted by Renewable Resources, are outlined in the Industrial and Special Waste Acceptance Plan. Suspicious or unknown wastes will not be accepted until the composition or chemical nature can be verified as acceptable wastes. Incoming wastes are evaluated for acceptability according to the waste acceptance criteria.

If unacceptable or unapproved wastes (e.g., hazardous wastes) are encountered at the facility, they shall be removed by the generator, if possible. If the generator does not remove the unacceptable or unapproved waste, Renewable Resources will isolate and remove the waste from the facility to an appropriate regulated facility.

11.1 Solid Waste Processing

The solid waste transport vehicles arriving at the facility will check in at the office, will be weighed, and then will be directed to proceed to the unloading area inside the waste storage building. The trucks will drive into the building, unload the untreated solid waste onto the concrete floor of the waste storage building, and drive out. Under no circumstances will the untreated waste be unloaded onto the ground outdoors. The trucks will be weighed again before leaving the Site. Designated personnel must be present during all unloading operations.

Materials will be screened for Technically Enhanced Naturally Occurring Radioactive Materials (TENORM) using a handheld radiation exposure meter (SE Inspector USB Meter) prior to disposal. Radioactive material found above twice the background exposure level will be rejected by the Site. Acceptable untreated waste will be stored indoors and segregated into separate stockpiles for 1) freshwater cuttings, 2) saltwater cuttings, 3) diesel-impacted cuttings, and 4) petroleum-contaminated spill materials until wastes are ready to undergo the thermal treatment process. All equipment associated with the thermal treatment units will be housed indoors at all times, and includes a leak detection and leachate collection system.

As previously discussed, the Site processes special waste as defined in NDCC 23-29-03.16, natural gas and/or petroleum-impacted waste, petroleum-contaminated waste associated with leaking underground or aboveground storage tanks or spill material, floor drain and sump sludge from carwash facilities, and other permit-approved wastes by means of direct and indirect-fired thermal treatment to remove contaminants. Following receipt, stored acceptable solid wastes will undergo the thermal treatment process as outlined in the following sections.

11.1.1 Direct Thermal Treatment

When the untreated solid waste is ready for thermal treatment, front-end loaders and skidsteers are used to load the waste onto a conveyor belt. The conveyor belt delivers the waste into the screener where debris is removed prior to entering the drum dryer. Inert debris, such as wood or large rocks, recovered in the screening process will be disposed of at an appropriate landfill. The screener is contained in a separate room to control dust. After the screening process, the waste is sent to the 100 MMBtu per hour drum dryer inside the thermal treatment building. This dryer is capable of processing 60-100 tons per hour. Here the untreated waste can be roasted upwards of 1200° F in the drum dryer as the cylinder rotates. The high temperature causes any organic contaminants present to volatilize, and thus be removed from the soil. The process gas is routed under vacuum to a bag house to remove particulate matter by filtering, then to a vapor recovery system (VRS) to recover as much process freshwater as possible. The clean water will be stored in three storage tanks inside the building.

Treated soil material (i.e., burned soil) processed from the drum dryer roasting is screened of rock (>3/4”) and gravel (<3/4”) at the screener location within the treated soil material processing area. The treated soil material is then conveyed for storage into one of the 225-ton silos or into 1-ton sacs located inside the processing building.

A smaller 40 MMBtu per hour drum dryer will also be utilized by Renewable Resources. This unit will operate essentially the same as the larger 100 MMBtu/hr burner, but will be mostly used as a mobile unit for spill sites or at well locations for remediation. This system is not equipment with a VRS, but will burn up all process gas in the incinerator at temperatures of not less than 1450°F.

11.1.2 Indirect Thermal Treatment

Diesel or oil-impacted E & P wastes are treated in a similar manner by the indirect-fired thermal treatment unit. The stream of waste soil sent to the indirect system will be fed with a front loader to a hopper, located within the new waste storage building, that will carry the material to the drum dryer (6 MMBtu/hr indirect unit) via an enclosed conveyor system for treatment. Temperatures during this treatment process can reach upwards of 650° F. This

allows any residual diesel/mineral spirits present in the soils to become heated and vaporized as a central auger rotates inside the drum dryer. The exhaust gases and dust from this process will be routed to a VRS for control. The mineral oil/water that is recovered from the vapor recovery system is routed to three storage tanks.

The remaining treated soil material is sent to be screened of rock and gravel in the treated material processing building and collected for storage in one of the 225-ton silos or other approved containers. This system is capable of processing 10 tons/hr and will be contained within the Thermal Treatment Building. This system is expected to be located at the Killdeer Site for the majority of the year, but it is a portable plant and may be relocated to spill sites if needed.

Treated soil material is either beneficially used on oil rig sites as a fly ash material to solidify E & P cuttings for transport to special waste landfills, or used for other approved beneficial uses (e.g., Pilot Study Project).

11.1.3 Solid Waste Storage Procedures

No wastes will be permanently stored on-site. Storage volumes will be kept at a level which will not impede proper facility operations. Waste piles within an approved structure may not occupy more than three quarters (3/4) of the structure at any time. The capacity of solid waste storage in the new waste storage building is approximately 7,500 cubic yards, at three quarters full.

11.1.4 Untreated Solid Waste Storage

Untreated solid waste is stored indoors on a concrete surface with a leak detection and leachate collection system until it is processed. Under no circumstances will untreated waste be placed outdoors on the ground for storage or allowed to spill out of the building. If untreated waste cannot be stored indoors on a concrete surface, it may only be stored outdoors in covered and leak-proof containers underlain with a synthetic liner, and only with **prior** regulatory approval. Renewable Resources will coordinate this with the NDDH prior to conducting this activity.

Potential TENORM waste will be segregated from all other waste within the waste storage building.

11.1.5 Treated Byproduct Storage

Appropriate byproduct storage issues will always be managed with extreme care at Renewable Resources due to the origin of the materials. Some byproducts have the potential to impact groundwater, surface water, or surface soils if spilled or improperly handled at the facility.

The NDDH and NDIC require that all treated materials be stored in such a manner that they will not cause environmental impacts to groundwater or surface water (through leaching or surface water runoff caused by precipitation), or be subject to dust concerns from blowing wind. This will require a "covered" area with an "impermeable" pad for any long-term storage, e.g., compacted clay or cement floor, or approved storage containers with protection from stormwater, or some form of engineered control to be preapproved with the NDDH and NDIC. Please refer to the Design Report for proposed outdoor storage areas for treated byproduct material.

Treated solid waste will be primarily stored indoors on a concrete surface or in three storage silos until it is removed from the Site for beneficial reuse. Under no circumstances will treated byproduct material be placed outdoors on the ground for storage. Renewable Resources anticipates the screened gravel materials will be demonstrated to be inert in nature; and, therefore, permission will be sought from NDDH to be allowed to be stored outdoors in designated areas. If treated byproducts cannot be stored indoors on a concrete surface or in the silos, it may only be stored outdoors in covered and enclosed containers with prior regulatory approval.

11.1.6 Treated Soil Material Transport/Destination

The treatment process results in an granular solid that has been roasted at temperatures up to 1200° F during the decontamination process. Currently these byproducts are suitable and approved to solidify drill cuttings for disposal at a special waste landfills in North Dakota or Montana. Additionally, Renewable Resources is currently participating with the NDDH in a Pilot Study Project for beneficial reuse of several of its treated byproduct materials to reuse the treated solids as a base grade material in road construction, the freshwater cuttings as general fill, and screened gravel/rock for general industrial use.

Greater detail for the proposed treatment processes performed by Renewable Resources at their Killdeer Treating Plant can be found in the Plan of Operations. Additional discussion on the proposed beneficial use program can be found in the "Pilot Project Work Plan," recently submitted to the NDDH Solid Waste Program.

11.2 Liquid Waste Handling and Processing

Renewable Resources currently processes liquid E & P wastes by screening out solids, separating and recycling any crude oil, and injecting the remaining fluids in a Class II deep saltwater injection well. The Site accepts all E & P fluids which are generally rejected at saltwater injection wells because of the high solids content (>25%), as well as other fluids generated during the solids processing described above. The fluids treatment system is capable of processing 100 barrels per hour (BBL/hr).

Liquid waste materials will be directly unloaded into the processing tank. The Facility also has two process holding tanks which can be used to feed material into the process at a more controlled rate. Fluids are pumped to the shaker table where the larger solids are screened out. These solids are placed into a container by a screw auger for future processing by the thermal treatment process described above. Unprocessed fluids from the shaker table are pumped into an open-topped liquids tank and "agitated" with a paddle to keep the remaining solids in suspension. Fluids are pumped into a drum separator to drive off and separate the remaining solids. The solids filtered off from the drum will be routed to the new waste storage building where they will eventually be fed to the indirect thermal treatment unit to recover any remaining crude or mineral spirits. The liquid wastes will be routed to the seven (7) process water tanks where they will undergo further separation and filtration using the process filtering equipment. After the solids have been removed from the liquid stream, the process tanks undergo gravity separation. The crude oil is skimmed off of the top and stored in a single crude oil tank for market. The remaining water is kept in the four 400-BBL freshwater mud tanks. Processed fluids are filtered using a proprietary filtering process. The final step in the fluids processing is removal from the Site and disposal by deep saltwater injection.

There are also two heavy solids off-load tanks where wet soil from hydrovac activities will be received. These solids will then be routed to the shaker tank where the fluids will be separated from the solids. The solids portion will be routed to the new waste storage building for further treatment, while the liquid portion will be routed to the frac tanks and the fluids processing tanks.

The Site proposes to process up to 873,600 barrels per year (BBL/yr) of E & P fluids waste, pending the approval of the NDIC Treating Plant Permit Application. [Note: Renewable Resources does not accept filter sock or NORM waste for processing from outside parties.]

11.2.1 Liquid Storage Procedures

All fluids present on-site will be stored in tanks with approved secondary containment structures to contain any release. In addition, leak detection systems will be located in each building to protect the site from any accidental releases.

11.2.2 Treated Liquid byproducts/Destination

The liquid treatment process creates four liquid byproduct streams:

- Recovered crude oil;
- Diesel fuel/mineral spirits;
- Freshwater; and
- Saltwater/brine.

The recovered crude oil, diesel fuel, and freshwater will be marketed and sold to oil companies or used onsite for processing operations. Saltwater or brine will be disposed of in off-site Class II injection wells. Transport vehicles are inspected for leakage prior to departure. Designated personnel will be present during all unloading and loading operations.

12. License Fee (See North Dakota Radiological Health Rule 33-10-11)

License Type: 2015 Schedule

- Waste Disposal and Processing (B)

Amount Enclosed: 2015 Schedule

- $13,710.00

13. OBTAIN A "CERTIFICATE OF AUTHORITY" FROM THE NORTH DAKOTA SECRETARY OF STATE TO OPERATE IN NORTH DAKOTA. CALL (800) 352-0867 EXT. 4284 FOR MORE INFORMATION.

A Certificate of Authority is provided in Attachment 6.

14. Certification (must be completed by applicant). The applicant understands that all statements and representations made in this application are binding upon the applicant. The applicant and any official executing this certification on behalf of the applicant, named in item 2, certify that this application is prepared in conformity with Radiation Health Chapters 33-10-3.1, -4.2, -11, -13.1 and that all information contained herein is true and correct to the best of their knowledge and belief.

WENCK ASSOCIATES
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Certifying Officer:

Aaron Havens, RSO

Date: 8-10-2015

15. Additional Information

Consolidated Guidance about Materials Licenses: Program-Specific Guidance About Service Provider Licenses (NUREG-1556, Volume 18, Appendix C) is provided in Attachment 7.

Should you have any additional questions or comments regarding this application, please don't hesitate to contact Renewable Resources, LLC at (701) 764-6749 or me at (701) 893-2316.

Sincerely,

Wenck Associates, Inc.

Andrew J. Feia
Environmental Scientist

enc: Attachments

c: Skye Fasching, NDDH
Shawn Kluver, Renewable Resources, LLC

Attachments:
1 SFN 8418
Fig. 1 – Site Location Map
2 Plan of Operations (incl. Industrial and Special Waste Acceptance Plan)
3 Radiation Safety Program (TENORM Safety Management Plan)
4 Emergency Response Plan
5 Proposed Site Layouts
6 Certificate of Authority
7 TENORM Licensing Guidance

Attachment 1

SFN 8418

Fig. 1 – Site Location Map

APPLICATION FOR RADIOACTIVE MATERIAL LICENSE

NORTH DAKOTA DEPARTMENT OF HEALTH
RADIATION CONTROL PROGRAM
SFN 8418 (10/12)

INSTRUCTIONS: SEE THE APPROPRIATE LICENSE APPLICATION GUIDE (NUREG-1556 SERIES) FOR DETAILED INSTRUCTIONS FOR COMPLETING APPLICATION. EMAIL A COPY OF THE ENTIRE COMPLETED APPLICATION TO RAM@ND.GOV

1. [X] A. New License
   [ ] B. Amendment to License Number _____
   [ ] C. Renewal of License Number _____
   [ ] D. Current NRC or Agreement State License No. _____

2. Name and Mailing Address of Applicant (include Zip Code)
   Renewable Resources, LLC
   P.O. Box 657
   Killdeer, North Dakota 58640

3. Address where Licensed Material will be Used or Possessed
   Renewable Resources, LLC
   10658 1st Street Northwest
   Killdeer, North Dakota 58640

4. Name of Person to be Contacted about this Application
   Shawn Kluver

Business Telephone Number	Business Cell Phone Number
(701) 764-6749	(701) 690-0777

Business Email Address
shawn@wastedirt.com

SUBMIT DOCUMENTION FOR ITEMS 5 THROUGH 11 AND AN ELECTRONIC COPY OF YOUR CURRENT OPERATING AND EMERGENCY PROCEDURES MANUAL. THE TYPE AND SCOPE OF INFORMATION TO BE PROVIDED IS DESCRIBED IN THE APPROPRIATE LICENSE APPLICATION GUIDE (NUREG-1556 SERIES).

5. Radioactive Material
   a. Element and mass number;
   b. Chemical and/or physical form; and
   c. Maximum amount which will be possessed at any one time
6. Purpose(s) for which Licensed Material will be Used.
7. Individual(s) Responsible for Radiation Safety Program and their Training Experience.
8. Training for Individuals Working in or Frequenting Restricted Areas.
9. Facilities and Equipment
10. Radiation Safety Program
11. Waste Management
12. License Fee (See North Dakota Radiological Health Rule 33-10-11)

License Type	Amount Enclosed
Waste Processing/Disposal	**$ 13,710.00**

13. Obtain a "Certificate of Authority" from the North Dakota Secretary of State to operate in North Dakota. Call (800) 352-0867 ext. 4284 for more information.

14. Certification (must be completed by applicant). The applicant understands that all statements and representations made in this application are binding upon the applicant.

    The applicant and any official executing this certification on behalf of the applicant, named in Item 2, certify that this application is prepared in conformity with Radiation Health Chapters 33-10-3.1, -4.2, -5.1, -7.2, -10.1, -11, -12.1, -13.1, -16, -17, -20, -21 and that all information contained herein is true and correct to the best of their knowledge and belief.

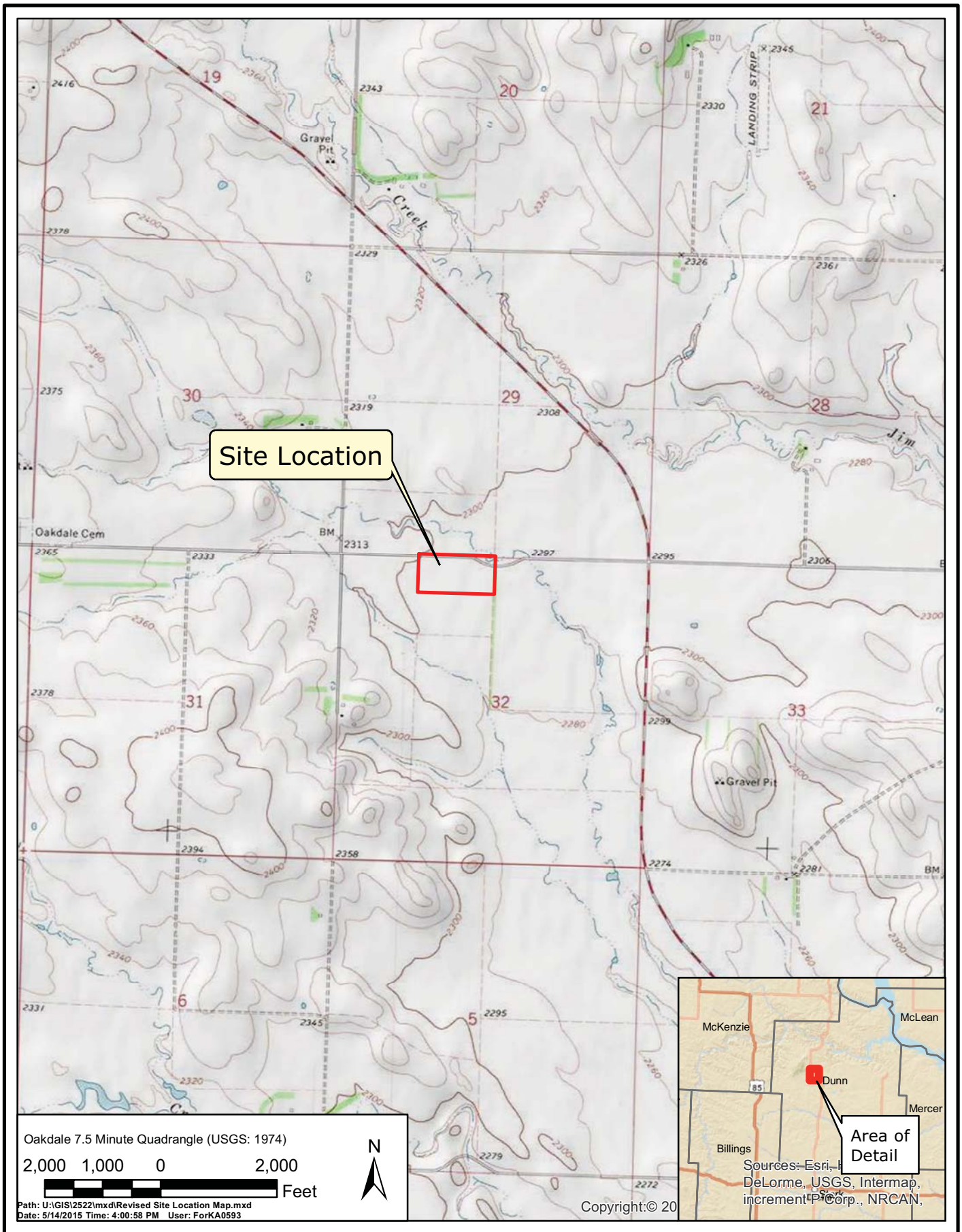
Certifying Officer – Typed/Printed Name and Title	Signature	Date
Shawn Kluver, CEO		**August 10, 2015**

A hard copy of this form shall be signed, dated and submitted to the Department along with the appropriate license fee. Payment shall be in the form of a check or money order payable to the North Dakota Department of Health. Send to:

North Dakota Department of Health
Division of Air Quality, 2nd Floor
918 East Divide Avenue
Bismarck, ND 58501-1947

FOR DEPARTMENT USE ONLY

TYPE OF FEE	FEE CATEGORY	AMOUNT RECEIVED	CHECK NUMBER	COMMENTS
		$	DATE	



RENEWABLE RESOURCES, LLC	WENCK ASSOCIATES Responsive partner. Exceptional outcomes.	JUL 2015
Site Location Map		Figure 1

Attachment 2

Plan of Operations (incl. Industrial and Special Waste Acceptance Plan)

WENCK File #2522-16
July 2015

Revised Plan of Operations

Renewable Resources, LLC, Permit SW-0363
Dunn County, North Dakota

Prepared for:

Renewable Resources, LLC

P.O. Box 657
Killdeer, North Dakota
58640

WENCK ASSOCIATES
Responsive partner. Exceptional outcomes.

Prepared by:

WENCK Associates, Inc.
3303 Fiechtner Drive
Fargo, North Dakota 58103
Phone: 701-297-9600
Fax: 701-297-9600

Table of Contents

Table of Contents (Cont.)

In-Text TABLES

FIGURES

APPENDICES

1.0 Introduction

This plan is the Operations Plan for the Renewable Resources, LLC (Facility/Site), located north of Killdeer, North Dakota. The Facility is approximately 20 acres in size and includes a transfer station, a thermal treatment unit, and related structures. "Special Waste" is the majority waste type accepted at the facility and includes non-hazardous solid waste and liquids generated mainly from crude oil and natural gas exploration and production (E&P) activities. Other industrial waste, such as petroleum-contaminated soils and sludges, will also be accepted at this facility.

This plan is intended to outline the operation of the Facility for compliance with the North Dakota Century Code (NDCC) Ch. 23-29 (the solid waste rules) and the requirements set forth in the North Dakota Department of Health (NDDH) Administrative Consent Agreement for case number 14-001 SWM issued on May 12, 2014. This plan also includes operations regulated by the North Dakota Industrial Commission (NDIC). When permitted by both entities, NDDH and the NDIC, the Site will operate under the jurisdiction of both state agencies for waste processing and treatment.

The objective of this Revised Operations Plan is to establish guidelines and requirements for use by facility personnel in the daily operations of the Facility, as well as inspection and maintenance requirements. This Operations Plan is designed to incorporate the practices and permit requirements of several other plans and permits to function as a comprehensive document for Site operation and management.

Separate management plans have been completed for the following and are referenced within this document:

- Dust Control Plan
- Industrial and Special Waste Acceptance Plan
- Revised Stormwater Pollution Prevention Plan (SWPPP)
- Revised Groundwater Monitoring Plan
- Closure Plan

Separate permits are also referenced within this document:

NDDH – Solid Waste Permit (facility currently has permit SW-0363 and with this application is applying for renewal and modification)
NDDH – Air Permit-to-Construct application(s) (pending PTC14082, PTC15010, PTC15013)
NDDH – Industrial Stormwater Permit (facility currently has permit NDR050712 and with this application is applying for renewal under the new General Permit)
NDIC – Application for Waste Treatment Plant (Pending Case # 23376)

This Operations Plan is designed to be a flexible document. It is written with the intent of incorporating satisfactory and compliant operating procedures for a fully constructed and operating Facility. When operating procedures, contingency actions, waste management procedures, or waste types/quantities have significantly changed, the plan will be amended.

2.0 Site Characterization

2.1 FACILITY INFORMATION

Table 2-1: Existing Permit Information

Name of Facility:	Renewable Resources, LLC
Current Property Description:	N ½ of NE ¼ of NW ¼ Section 32, T146N, R95W in Dunn County, North Dakota (20 Acres)
Facility Location	10658 1st Street Northwest Killdeer, North Dakota 58640
Permittee/Operator:	Shawn Kluver Renewable Resources, LLC P.O. Box 657 Killdeer, North Dakota 58640 (701) 764-6749
Permitted Waste Types:	Special waste as defined in NDCC 23-29-03.16, natural gas and/or petroleum-impacted oilfield waste, petroleum-impacted spill materials, floor drain and sump sludge from carwash facilities, and other permit-approved wastes.
Permitted Waste Quantities:	438,000 tons/year – Solids (NDDH Regulated)
Current Zoning:	The Site is zoned as "Rural Development" by Dunn County Planning and Zoning under a Conditional Use Permit.

2.2 SITE LOCATION

The Site is located 5.3 miles north of the City of Killdeer on 1st Street Northwest, via ND Highway 22, and less than one mile west of ND Highway 22 in Dunn County, North Dakota. The Site is located in the north half of the northeast quarter of the northwest quarter of Section 32 in Township 146 North, Range 95 West (Figure 1). The facility is approximately 20 acres in size. Trees line the eastern Site boundary, providing some visual screening from the highway. The current land use surrounding the Site is mainly agricultural with several oil wells present nearby.

2.3 SITE BACKGROUND

Renewable Resources provides a unique contract service that removes organic contaminants from Resource Conservation and Recovery Act (RCRA) – exempt E & P oilfield waste and other petroleum-impacted industrial waste and liquids (e.g., soils impacted by petroleum from pipelines, truck or rail accidents, etc.). The Facility received NDDH Solid Waste Management Permit SW-0363 on September 10, 2012. This permit authorized Renewable Resources to operate two Solid Waste Management Units: a Transfer Station and a Thermal Treatment Unit and Related Structures.

The facility is authorized for the treatment of special wastes and under the 2012 permit is restricted to processing the following types of waste:

- EPA-exempt natural gas and crude oil exploration and production wastes;
- Petroleum-contaminated wastes associated with leaking underground storage tanks;
- Petroleum-contaminated wastes associated with releases from aboveground storage tanks;
- Natural gas and/or crude oil-impacted wastes associated with pipeline or transportation releases;
- Floor drain and sump sludges associated with car wash facilities and automotive repair facilities;
- Inert waste; and
- Other types of special waste upon the approval of the NDDH.

On September 16, 2013, NDDH granted a Beneficial-Use Permit allowing treated soil materials to be used "for treatment/solidification of oilfield waste only and placement is restricted to oilfield waste disposal pits approved by and acceptable to the North Dakota Oil and Gas Division." This use was recently reapproved on May 7, 2015 with some additional restrictions for use, including:

- Waste material must not be stockpiled outside or placed anywhere outside buildings or controlled structures adequate to prevent uncontrolled introduction into surface water, groundwater, air and soils;
- Adequate measures must be taken to prevent water contamination and to control and prevent water that has been in contact with waste from leaving the property;
- Adequate measures must be employed to prevent contact of waste by stormwater;
- Any storage and use of materials must be approved by a state agency and be adequately managed via a stormwater permit and Stormwater Pollution Prevention Plan; and
- Adequate measures must be employed at all time to minimize windblown dust or dispersion of materials into the atmosphere and surrounding land.

A formal Notice of Violation (NOV) was issued to Renewable Resources on January 9, 2014 for failure to comply with Permit SW-0363 provisions, In general, these violations included stockpiling solid waste outside of the waste storage building, spilled or leaking fluids, and dust present across the Site, among others.

An Administration Consent Agreement (ACA) was then sent to Renewable Resources on May 5, 2014 (revised May 12th). This document provided necessary settlement terms for facility compliance as previously documented in the NOV. Detailed requirements for the Site cleanup, Site soil assessment, groundwater monitoring, updating Site management plans, inspections and monthly reporting, plans detailing Site operations, and submittal of a North Dakota Industrial Commission (NDIC) Permit Application were all included in the Consent Agreement.

The former Plan of Operations was originally submitted as one of the Settlement Terms required as part of the ACA. A large portion of the corrective action required as part of the agreement has since been completed. Please refer to the Design Report for detailed information.

2.4 PILOT STUDY PROJECT (HOUSE BILL 1390)

Renewable Resources produces many byproducts from the separation and treatment of E & P oilfield wastes and other similar industrial wastes under its existing permit (SW-0363). Pursuant to North Dakota Legislative Bill 1390, Renewable Resources was selected as a "commercial oilfield special waste recycling facility" participant for the Pilot Study. The purpose of study is intended to provide justification for the appropriate and alternative beneficial uses for oilfield-related wastes. These wastes are thermally treated by Renewable Resources. By providing these alternative uses for byproducts that would otherwise be classified as solid waste and require landfilling or other applicable disposal methods, Renewable Resources is essentially proposing to reduce the need for landfill disposal through utilization by appropriate and approved means.

Renewable Resources has identified the following two main categories of byproduct materials which are produced onsite by the thermal treatment units for further evaluation and consideration for potential beneficial use:

- Screened Gravel Material
  - Pea Gravel
  - Road Rock
- Treated Soil Material
  - Freshwater Cuttings
  - Petroleum Spill Material (Industrial Waste)
  - Oil Cuttings
  - Saltwater Cuttings

3.0 Facility Plan of Operations

3.1 GENERAL

A bound copy of this manual, along with a complete set of facility design plans and specifications, as approved by the NDDH, and the facility's SWPPP, SPCC, Dust Control, and other management plans will be kept in the operations office at the Site. A facility Operator will be present to observe proper operation and monitoring of the Site at all times it is open to receive waste.

3.2 SITE ACCESS AND SECURITY

The waste processing/treatment portion of the facility will be surrounded by a lockable fence and gates. There are two entrances to the Site; however, the west entrance will be mainly used for Site egress, but also allowing access to the maintenance shop or the housing units found on the western portion of the Site. The main entrance to the Site will be the eastern approach where traffic can be directed to the scale/scalehouse. This separate entrance restricts access to the processing facility (see Figure 2) and will provide for better traffic control and flow through the facility. Site access is maintained via North Dakota Highway 22 to County Road 1st Street NW (see Figure 1).

Traffic will enter the Site from 1st Street Northwest and pass over the scale for weighing. Granular/solid waste will be directed to the new waste storage building for off-loading before exiting the Site. Trucks hauling liquid waste will be directed to the fluids processing building where they will enter before off-loading to storage tanks within the building. After off-loading, waste vehicles will again traffic over the scale to be weighed and will exit onto 1st Street Northwest.

The facility is currently open 24 hours a day and seven days a week. However, if for some reason the facility "shuts," the entrance and exit gates are closed and locked, an Operator must be contacted in order to gain entrance. At no time will entrance be allowed without an Operator present to monitor the waste unloading operations. The Operator may close the facility earlier when weather warrants discontinuing operation of the facility. Vehicles will be able to unload only if an Operator and other personnel necessary to carry out thermal treatment (3 staff) and fluids/solids separation (2 staff) in conformance with the facility permit are present. The facility Operator will ask unauthorized individuals to leave the Site.

3.3 WASTE ACCEPTANCE PLAN

An Industrial and Special Waste Acceptance Plan has been developed for the facility in conjunction with the request for permit renewal/modification and should be used in accompaniment with this Operations Plan (Appendix A). The waste acceptance procedures set forth in the plan are intended to provide sufficient procedural guidelines and requirements to assure compliance with the current rules and regulatory requirements of the Renewable Resources - Solid Waste Management Permit. The Operator shall be familiar with the plan and the basic rules for determining the exempt or nonexempt status of oil and gas ex E & P, as published by the U.S. EPA. Primarily, exempt wastes from RCRA Subtitle C Regulations will be permitted at this Site. Non-exempt special wastes may also be

accepted, if they pass the testing and acceptance criteria set forth in the Waste Acceptance Plan.

The proposed operational capacity of the Site is:

- 100 tons of solid waste per hour in the direct thermal treatment unit (NDDH/NDIC Oversight);
- 10 tons of solid waste per hour in the indirect thermal treatment unit (NDDH/NDIC Oversight); and
- 100 BBls of liquid waste per hour (NDIC only).

Unacceptable wastes include municipal solid waste, medical waste, or any other material not identified in an approved waste acceptance plan and the list of NDDH or NDIC-approved wastes. Waste acceptance and waste rejection procedures, as adopted by Renewable Resources, are outlined in the Industrial and Special Waste Acceptance Plan. Suspicious or unknown wastes will not be accepted until the composition or chemical nature can be verified as acceptable wastes. Incoming wastes are evaluated for acceptability according to the waste acceptance criteria.

If unacceptable or unapproved wastes (e.g., hazardous wastes) are encountered at the facility, they shall be removed by the generator, if possible. If the generator does not remove the unacceptable or unapproved waste, Renewable Resources will isolate and remove the waste from the facility to an appropriate regulated facility.

3.4 PROPOSED FACILITY OPERATIONS

The Facility will operate three separate processes and three operating scenarios; 1) E & P Fluids/Solids Separation, 2) E & P Thermal Treatment, and 3) E & P Crude Oil Recovery.

Table 3-1: Proposed Facility Operations

Equipment	Treatment Process	Building Location	Processing Rate
Fluids/Solids Separation	E & P Fluids	Fluids Processing Bldg.	100 BBL/Hr
Direct Thermal (Main)	E & P Cuttings, Industrial Waste	Thermal Treatment Bldg.	100 Tons/Hr
Indirect Thermal	Invert/Oil Recovery	Thermal Treatment Bldg.	10 Tons/Hr
Mobile Direct Thermal (Secondary)	E & P Cuttings, Industrial Waste	N/A	50 Tons/Hr

- The fluids separation system consists of process filtering equipment and storage tanks. This system will be located permanently at the Site and inside the new fluids processing building.
- The main E & P processing system consists of a 100 MMBtu/hr direct thermal treatment unit (drum dryer), bag house, and vapor recovery system (scrubber) to be located onsite in the thermal treatment building. This unit is proposed to treat freshwater, saltwater, and diesel-impacted cuttings, petroleum-contaminated spill material, (industrial waste), and other NDDH/NDIC-approved wastes. This vapor recovery system will be used to recover process freshwater.

- The indirect system consists of a 6 MMBtu/hr indirect thermal treatment unit (Auger-Screw Drum Dryer) and vapor recovery system (scrubber). It is expected that the portable indirect treatment unit will be co-located with the main E & P treatment system in the thermal treatment building for much of the year, but it may be taken to spill sites for on-site remediation, where approved. This system will be used to recover crude oil/mineral spirits and process freshwater.
- The secondary thermal treatment process consists of a smaller 40 MMBtu per hour direct thermal treatment unit. This unit is proposed to be a mobile treatment unit that will be moved from site to site, or operated onsite if the main thermal treatment unit is down for maintenance.

3.4.1 Solid Waste Handling Procedures

The solid waste transport vehicles arriving at the facility will check in at the office, will be weighed, and then will be directed to proceed to the unloading area inside the waste storage building. The trucks will drive into the building, unload the untreated solid waste onto the concrete floor of the waste storage building, and drive out. Under no circumstances will the untreated waste be unloaded onto the ground outdoors. The trucks will be weighed again before leaving the Site. Designated personnel must be present during all unloading operations.

Materials will be screened for Technically Enhanced Naturally Occurring Radioactive Materials (TENORM) using a handheld radiation exposure meter (SE International M^4 Meter) prior to disposal. Radioactive material found above twice the background exposure level will be rejected by the Site. Acceptable untreated waste will be stored indoors and segregated into separate stockpiles for 1) freshwater cuttings, 2) saltwater cuttings, 3) diesel-impacted cuttings, and 4) petroleum-contaminated spill materials until wastes are ready to undergo the thermal treatment process. All equipment associated with the thermal treatment units will be housed indoors at all times and includes a leak detection and leachate collection system.

3.4.2 Solid Waste Processing

As previously discussed, the Site processes special waste as defined in NDCC 23-29-03.16, natural gas and/or petroleum-impacted waste, petroleum-contaminated waste associated with leaking underground or aboveground storage tanks or spill material, floor drain and sump sludge from carwash facilities, and other permit-approved wastes by means of direct and indirect-fired thermal treatment to remove contaminants. Following receipt, stored acceptable solid wastes will undergo the thermal treatment process as outlined in the following sections.

3.4.2.1 Direct Thermal Treatment

When the untreated solid waste is ready for thermal treatment, front-end loaders and skidsteers are used to load the waste onto a conveyor belt. The conveyor belt delivers the waste into the screener where debris is removed prior to entering the drum dryer. Inert debris, such as wood or large rocks, recovered in the screening process will be disposed of at an appropriate landfill. The screener is contained in a separate room to control dust. After the screening process, the waste is sent to the 100 MMBtu per hour drum dryer inside

the thermal treatment building. This dryer is capable of processing 60-100 tons per hour. Here the untreated waste can be roasted upwards of 1200° F in the drum dryer as the cylinder rotates. The high temperature causes any organic contaminants present to volatilize, and thus be removed from the soil. The process gas is routed under vacuum to a bag house to remove particulate matter by filtering, then to a vapor recovery system (VRS) to recover as much process freshwater as possible. The clean water will be stored in three storage tanks inside the building. The water will either be marketed as freshwater or used in onsite processes.

Treated soil material (i.e., burned soil) processed from the drum dryer roasting is screened of rock (>3/4") and gravel (<1/2") at the screener location within the treated soil material processing area. The treated soil material is then conveyed for storage into one of the 225-ton silos or into 1-ton sacs located inside the processing building. Screened gravel materials will be separated from the treated soil materials and stored in designated areas for further consideration of beneficial reuse for the pilot project.

A smaller 40 MMBtu per hour drum dryer is also proposed to be utilized by Renewable Resources. This unit will operate essentially the same as the larger 100MMBtu/hr burner, but will be mostly used as a mobile unit for spill sites or at well/saltwater locations for remediation. This system is not equipment with a VRS, but will burn up all process gas in the incinerator at temperatures of not less than 1450°F.

3.4.2.2 Indirect Thermal Treatment

Diesel or oil-impacted E & P wastes are treated in a similar manner by the indirect-fired thermal treatment unit. The stream of waste soil sent to the indirect system will be fed with a front loader to a hopper located within the new waste storage building that will carry the material to the drum dryer (6 MMBtu/hr indirect unit) via an enclosed conveyor system for treatment. Temperatures during this treatment process can reach upwards of 650° F. This allows any residual diesel/mineral spirits present in the soils to become heated and vaporized as a central auger rotates inside the drum dryer. The exhaust gases and dust from this process will be routed to a VRS for control. The mineral oil/water that is recovered from the vapor recovery system is routed to three storage tanks. It is expected that one of the three storage tanks designated for this treatment unit will contain process freshwater, one will contain a 50-50 mixture of water and mineral oil, and the third will contain mineral oil.

The remaining treated soil material is sent to be screened of rock and gravel in the treated material processing building and collected for storage in one of the 225-ton silos or other approved containers. This system is capable of processing 10 tons/hr and will be contained within the Thermal Treatment Building. This system is expected to be located at the Killdeer Site for the majority of the year, but it is a portable plant and may be relocated to spill sites if needed.

Treated soil material is either beneficially used on oil rig sites as a fly ash material to solidify E & P cuttings for transport, or used for other approved beneficial uses (e.g., Pilot Study Project).

3.4.3 Solid Waste Storage Procedures

No wastes will be permanently stored on-site. Storage volumes will be kept at a level which will not impede proper facility operations. Waste piles within an approved structure may not occupy more than three quarters (3/4) of the structure at any time. The capacity of solid waste storage in the new waste storage building is approximately 7,500 cubic yards, at three quarters full.

3.4.4 Untreated Solid Waste Storage

Untreated solid waste is stored indoors on a concrete surface with leak detection and leachate collection system until it is processed. Under no circumstances will untreated waste be placed outdoors on the ground for storage or allowed to spill out of the building. If untreated waste cannot be stored indoors on a concrete surface, it may only be stored outdoors in covered and leak-proof containers underlined with synthetic liner, and only with prior regulatory approval. Renewable Resources will coordinate this with the NDDH prior to conducting this activity.

3.4.5 Treated Byproduct Storage

Appropriate byproduct storage issues will always be managed with extreme care at Renewable Resources due to the origin of the materials. Some byproducts have the potential to impact groundwater, surface water, or surface soils if spilled or improperly handled at the facility.

The NDDH and NDIC require that all treated materials be stored in such a manner that they will not cause environmental impacts to groundwater or surface water (through leaching or surface water runoff caused by precipitation), or be subject to dust concerns from blowing wind. This will require a "covered" area with an "impermeable" pad for any long-term storage, e.g., compacted clay or cement floor, or approved storage containers with protection from stormwater, or some form of engineered control to be preapproved with the NDDH and NDIC. Please refer to the Design Report for proposed outdoor storage areas for treated byproduct material.

Treated solid waste will be primarily stored indoors on a concrete surface or in three storage silos until it is removed from the Site for beneficial reuse. Under no circumstances will treated byproduct material be placed outdoors on the ground for storage, unless characterization conducted as part of the pilot study shows material is inert, and only under the direction of the NDDH and NDIC. Renewable Resources anticipates the screened gravel materials will demonstrate to be inert in nature and, therefore, allowed to be stored outdoors in designated areas. If treated byproducts cannot be stored indoors on a concrete surface or in the silos, it may only be stored outdoors in covered and enclosed containers with prior regulatory approval.

3.4.6 Treated Byproduct Testing

Treated byproducts will be regularly field screened to ensure it has been adequately remediated. Byproducts are proposed to be field tested for specific conductance using one part distilled water to one part byproduct (1:1) mixture to evaluate primarily salt-related

impacts prior to laboratory analysis. A variation of 4:1 dilution or a double wash may also be tested and used for screening of specific conductance. In addition, Renewable Resources will screen for the presence of organic vapors using a photoionization detector (PID). If screening shows that the waste was properly treated, it will be stored in the silos or in an NDDH-approved container, and readied for proposed beneficial use. If the analysis shows that the waste has not been properly remediated, the waste is then treated again. This field testing technique will be further evaluated as part of the Pilot Study Project, and approved by the NDDH for full implementation.

Select laboratory samples, where applicable and at a frequency needed to provide representative data, will be collected from the discharge ends of the direct or indirect thermal treatment units using nitrile gloves and placed into clean sample containers provided by an approved certified laboratory. All industry standard quality assurance and quality control methods will be followed for shipping samples. Sample container labels will be filled out with all appropriate information (i.e., sample ID, sampler name, date/time, analysis required), sealed, and packed on ice prior to shipment. A Chain-of-Custody form will be included with all shipments to the testing laboratory. Samples will be tested for the following parameters:

- TPH as Diesel Range Organics (DRO);
- TPH as Gasoline Range Organics (GRO);
- Benzene, Toluene, Ethyl Benzene, and Xylenes (BTEX); and
- Total Salts (conductivity, chloride, sulfate, etc.).

Petroleum contaminants will be verified that contamination levels will near detection levels, and salt-related contaminants will be near levels identified as acceptable for beneficial reuse.

3.4.7 Treated Soil Material Transport/Destination

The treatment process results in an inert granular solid that has been roasted at temperatures up to 1200° F during the decontamination process. Currently these byproducts are suitable and approved to solidify drill cuttings for disposal at a special waste landfill. Additionally, Renewable Resources is currently participating with the NDDH in a Pilot Study Project for beneficial reuse of several of its treated byproduct materials to reuse the treated solids as a base grade material in road construction, the freshwater cuttings as general fill, and screened rock for general industrial use. No specific projects have been designed at this time for the intended use of the inert waste by Renewable Resources or its contractors. These will be detailed in the Pilot Study Work Plan, to be submitted under separate cover by Renewable Resources. As a result, no information is currently available as to the location where the treated waste will be used. However, locations will likely be within 30 to 60 miles of the Renewable Resources facility. For transport of the stored treated byproduct material offsite, trucks will drive into an enclosed structure underneath the storage silos to be loaded with the treated byproduct material or into the west doors of thermal treatment building to minimize dust generation.

3.4.8 Liquid Waste Handling and Processing

Renewable Resources currently processes liquid E & P wastes by screening out solids, separating and recycling any crude oil, and injecting the remaining fluids in a Class II deep saltwater injection well. The Site accepts all E & P fluids which are generally rejected at saltwater injection wells because of the high solids content (>25%), as well as other fluids generated during the solids processing described above. The fluids treatment system is capable of processing 100 barrels per hour (BBL/hr).

Liquid waste materials will be directly unloaded into the processing tank. The Facility also has two process holding tanks which can be used to feed material into the process at a more controlled rate. Fluids are pumped to the shaker table where the larger solids are screened out. These solids are placed into a container by a screw auger for future processing by the thermal treatment process described above. Unprocessed fluids from the shaker table are pumped into an open-topped liquids tank and "agitated" with a paddle to keep the remaining solids in suspension. Fluids are pumped into a drum separator to drive off and separate the remaining solids. The solids filtered off from the drum will be routed to the new waste storage building where they will eventually be fed to the indirect thermal treatment unit to recover any remaining crude or mineral spirits. The liquid wastes will be routed to the seven (7) process water tanks where they will undergo further separation and filtration using the process filtering equipment. After the solids have been removed from the liquid stream, the process tanks undergo gravity separation. The crude oil is skimmed off of the top and stored in a single crude oil tank for market. The remaining water is kept in the four 400-BBL freshwater mud tanks. Processed fluids are filtered using a proprietary filtering process. The final step in the fluids processing is removal from the Site and disposal by deep saltwater injection.

After final separation and skimming, crude oil will then be dispensed to trucks for transport to market. The crude oil lead-out area is proposed to be located within the fluids processing building in order to take advantage of the proposed containment system to be retrofitted within the building. This lead-out area may be expanded outside the building in the future to accommodate additional trucks. If this occurs, Renewable Resources will implement and construct a containment area that is lined and capable of preventing any spill material from reaching the ground.

There are also two heavy solids off-load tanks where wet soil from hydrovac activities will be received. These solids will then be routed to the shaker tank where the fluids will be separated from the solids. The solids portion will be routed to the new waste storage building for further treatment while the liquid portion will be routed to the frac tanks and the fluids processing tanks.

The Site proposes to process up to 873,600 barrels per year (BBL/yr) of E & P fluids waste, pending the approval of the NDIC Treating Plant Permit Application. [Note: Renewable Resources does not accept filter sock or NORM waste for handling from outside parties.]

3.4.9 Liquid Storage Procedures

All fluids present on-site will be stored in tanks with approved secondary containment structures to contain any release. The proposed tank storage, to be regulated under the NDIC, is tabulated below.

Table 3-2: Proposed Storage Tank Information

Tank Storage				
Content of Tank	**Open or Enclosed**	**Size of Tank (BBL)**	**Number of Tanks**	**Total (BBL)**
Fluid Waste	Enclosed	400	12	4,800
Fluid Waste Processing	Enclosed	500	2	1,000
Water	Enclosed	350	1	350
Flowback Water	Enclosed	400	1	400
Processing Agitation	Open	500	1	500
Heavy Solids Off-Load	Open	400	2	800
Direct Thermal Treatment	Enclosed	400	3	1,200
Indirect Thermal Treatment	Enclosed	400	3	1,200
Diesel (generators)	Enclosed	300	2	600
Diesel (generators)	Enclosed	500 (Gal)	2	1,000 (Gal)
Total Open Tanks				1,300 (54,600 Gal)
Total Enclosed/Covered Tanks				9,574 (402,108 Gal)
Total Fluid Storage				10,874 (456,708 Gal)

3.5 TREATED LIQUID BYPRODUCTS

The liquid treatment process creates four liquid byproduct streams:

- Recovered crude oil;
- Diesel fuel/mineral spirits;
- Freshwater; and
- Saltwater/ brine

The recovered crude oil, diesel fuel, and freshwater will be marketed and sold to oil companies or used onsite for processing operations. Saltwater or brine will be disposed of in off-site Class II injection wells. Transport vehicles are inspected for leakage prior to departure. Designated personnel will be present during all unloading and loading operations.

3.6 SURFACE WATER CONTROL AND EROSION CONTROL

Surface water run-on will be diverted away from all processing areas, roads, and maintenance areas to the extent possible. All stormwater run-off will be managed on-site and under controlled conditions. All solid waste and liquid storage will be confined to indoors at the Site. Routine inspections will be conducted by Renewable Resources staff daily and more formal inspections will be completed weekly and monthly.

Drainage routing features have all been over-sized to handle a 24-hour, 100-year storm event, deemed more protective then the required 24-hr/25-yr storm in the NDDH rules. Please refer to the Site-specific SWPPP, submitted under separate cover, and outlines best management practices for the Site. Specific design criteria can be found in Appendix C of the Design Report, submitted with the Request for Permit Renewal/Modification Application (Wenck, July 2015).

3.7 EMERGENCY RESPONSE PLAN

The Site is designed and operated to minimize potential emergency situations. Employees are trained, per the facility's Health and Safety Plan, how to respond to emergencies. For emergencies that could happen, such as fires, explosions, or spilling of hazardous waste, the following emergency information is provided.

The facility will have first aid and emergency equipment on-site for use during an emergency. The emergency equipment consists primarily of first aid supplies, communication devices and fire extinguishers. Access to heavy equipment and vehicles may also be very important in responding appropriately to emergencies.

3.7.1 Fire or Accident Procedures

Procedures to be followed during an emergency (fire or accident) are as follows:

1. Evaluate extent of fire/accident.
2. Call 911 (if appropriate for the emergency).
3. Close off area of fire or accident.
4. If possible, **and safe**, utilize on-site equipment to contain fire, and/or deal appropriately with the accident.
5. Work with Fire Department to extinguish fire (or the appropriate responders, if an accident).
6. Evaluate impact of fire or accident on facility integrity.
7. Notify NDDH and/or the NDIC.

Fire extinguishers are kept in the facility buildings and in all pieces of operating equipment. Fire protection is provided by the City of Killdeer Fire Department.

3.7.2 Spill Procedures

All spills, whether liquid or solid, will be promptly reported to the NDDH using an Environmental Incident Report form through the NDDH Environmental Health Section website, or to the NDIC Oil & Gas website. These will be cleaned up in a timely and

appropriate manner. This will also be documented in the monthly reporting requirements, including any corrective actions implemented to control the spill or leak.

Suspected Hazardous Waste:
All hazardous waste spills will be controlled as soon as personnel safety is secured. Spill response materials and tools to respond to hazardous materials spills shall be kept at the facility. Personnel specifically trained in hazardous materials incident response will be the only personnel participating in a waste cleanup. All other staff or personnel will vacate the area. All drainageways and conduits to water will be protected from the leak or spill to control contamination from entering local drainageways or water bodies. All emergency equipment is tested and maintained as necessary to ensure its proper operation in time of emergency. After an emergency spill cleanup is complete, all equipment will be cleaned as appropriate to resume its normal operations.

Non-Hazardous Waste:
All spills will be controlled as soon as possible. Spill response materials are located on-site. Personnel will clean up leaks as necessary to maintain efficient operations. All drainage ways and conduits to water will be protected from the leak or spill to control contamination from entering water bodies. Refer to the facility SPCC plan for specific spill management procedures, clean-up and reporting requirements.

Emergency telephone numbers are as follows:

▲ Ambulance		911
▲ City of Killdeer Fire Department		911
▲ Dunn County Sheriff	(Emergency)	911
	(Non-Emergency)	701-573-4449
▲ Dunn County Emergency Management		
	(Office)	701-573-4612
	(Mobile)	701-290-1769
▲ Shawn Kluver	(Mobile)	701-690-0777
	(Office)	701-764-6749
▲ North Dakota Industrial Commission		701-328-8020
▲ North Dakota Department of Health		701-328-5210
▲ North Dakota Department of Emergency Services		701-328-8100
		800-472-2121
▲ National Response Center		800-424-8802
▲ US EPA Region 8		202-227-8917

3.7.3 Communications

The main mode of communication will be via cellular phones. The office maintains communications with equipment and facility operators via two-way radio and cellular phones.

3.7.4 Groundwater or Surface Water Contamination

All efforts must be made to prevent spills of either hazardous or nonhazardous waste material from entering the groundwater or surface water. All storage tanks shall be kept

free of leaks and in good condition. Any storage tanks shall be constructed of materials resistant to the effects of produced saltwater liquids, brines, or chemicals. Burial and partial burial of tanks is prohibited.

Groundwater quality is monitored by a network of monitoring wells. More information about the monitoring wells and Environmental Monitoring System (EMS) are available in the Revised Groundwater Monitoring Plan.

3.8 NUISANCE CONTROL

3.8.1 Waste Control

Solid waste other than the volume approved by the permit shall not be stockpiled or stored on-site unless authorized by an appropriate regulatory agency. Any released waste that is encountered outside of approved storage structures or containers shall be cleaned-up as soon as possible. Burial of waste at the facility is prohibited. All residual water and waste, fluid or solid, shall be disposed at an approved facility.

Waste will be cleaned from vehicles during the unloading process inside the building to prevent any waste tracking off-site. Cattle guards are proposed to be installed along all building concrete aprons, as well as the Site entrance and exit to help control waste tracking at the facility.

3.8.2 Dust Control

Due to the nature of the treatment process, the treated soil material is extremely dry and dusty. The release of dust is mitigated by loading the treated soil materials in an enclosed structure with a garage door on either end. The garage doors are closed during the loading process. Air in the enclosed structure is circulated through the dust collector or "bag house" to further reduce the amount of dust escaping to the outdoors during the loading process. All transport vehicles will be required to be tarped before exiting the building or load-out areas.

The gases (volatilized organics) and dusts generated in the drum dryer (100 & 40 MMBtu/Hr units) are routed under vacuum to the "bag house" to remove particulate matter. The bag house filters the dust out of the air and sends the process gas to either the vapor recovery system (100 & 6 MMBtu/Hr units) or to a thermal oxidizer (40 MMBtu/Hr unit). Any remaining dust particles and gases are heated up to 1450^{o} F degrees which destroy the organic contaminants and the filtered air is released through the stack. These processes are covered by a separate air permits with the NDDH (PTC14082, PTC15010, and PTC15013).

The waste processing equipment is located within enclosed structures to prevent contamination and nuisance issues with windblown dust. In the event that waste is spilled or tracked outside of the facility's structures, it will be cleaned up immediately and the area appropriately decontaminated.

Dust control is discussed in greater detail in the Dust Control Plan included in Appendix B.

3.8.3 Odor Control

Odor will be controlled through implementation of proper operational practices including keeping the facility clean of odor causing materials. In addition, the length of time that material is stored at the facility will be minimized.

3.9 LEAK DETECTION AND LEACHATE COLLECTION SYSTEMS

Leak detection and leachate collection system design is discussed in the Facility's Design Report for each of the three on-site processing buildings. The facility will be constructed to provide leak detection and leachate collection systems to meet the conditions of existing NDDH Permit SW-0363, the Consent Agreement, and the regulatory requirements of the NDDH and NDIC.

3.10 SAFETY PROCEDURES

Occupational Safety and Health Administrative (OSHA) standards will be adhered to during all activities performed at the Site. Please refer to the Site's Health and Safety Plan.

3.10.1 Worker Safety

Facility operators are trained in equipment safety and proper handling techniques. All required safety training is coordinated by Renewable Resources, and is ongoing. Specific details on this can be found in the Site Health & Safety Plan.

3.11 OPERATION AND MAINTENANCE REQUIREMENTS

Regularly scheduled maintenance of equipment according to the manufacturer's specifications will be performed. Roads will be repaired as necessary by applying new gravel, grading, or by other necessary means. The facility will be kept "clean" and in good order on an as-needed basis, and all residuals will be disposed of properly. If the Site Operator notices any problems, implementation of corrective actions should commence as soon as possible. The extent of the repairs may vary, and most will be done by facility staff themselves. It is likely that an outside contractor would be hired to repair more significant damage to infrastructure or equipment.

3.11.1 Operating Record

Operation, maintenance, and inspection records will be maintained for at least five (5) years following closure of the facility and will be made available for inspection.

3.11.2 Facility Structures

Facility structures will be cleaned and inspected regularly. Any damage that may allow precipitation to enter should be repaired no later than two weeks after the damage is discovered.

3.11.3 Facility Equipment

Front-end loaders and skid-steers will be used to complete much of the work onsite. All equipment will be operated and maintained in accordance with manufacturer recommendations. Below is a list of equipment utilized at the Renewable Resources Site:

- Pay Loader
- Skidsteer
- Excavator
- Fork Lift
- Vacuum Truck
- Saltwater Disposal Truck
- Dump Truck
- Mobile Power Washer
- Generators
- Misc. Trailers (with process equipment)
- Other equipment is available for rent, when needed

4.0 Monitoring & Inspection Requirements

4.1 STORMWATER COLLECTION SYSTEM

To the best extent possible, stormwater run-on will be directed away from the processing area through a series of berms, dikes, and or culverts. Run-off captured in the sedimentation ponds will be analyzed for specific constituents before controlled release to the environment or be routed to the liquids processing for treatment and final disposal through a saltwater injection well. Please refer to the Revised Groundwater Monitoring Plan for stormwater sampling procedures and parameters.

4.2 SITE INSPECTION REQUIREMENTS

Daily informal inspections are conducted by the facility personnel during routine Site operations. Inspections will include, but not be limited to, the waste storage building and structures, waste processing equipment, tank containment, tanks, loading and unloading areas, and the stormwater drainage. A weekly inspection checklist will be filled out noting Site conditions and issues (Appendix C). Monthly inspections of the facility and its operations will also be conducted and documented (Appendix D). These documents will be compiled and submitted with the facility's annual report. These inspection requirements are applicable to both the NDDH and NDIC regulatory requirements.

Documented stormwater inspections are required semiannually per the SWPPP and will be maintained with that plan. Documented SPCC inspections are required monthly and will be maintained with that plan.

4.3 OPERATOR TRAINING

All facility personnel must receive appropriate (and on-going) training for the proper carrying out of their duties, including the requirements and responsibilities under the terms of the facility's permit and the NDDH rules governing the facility. Personnel training will be recorded in the facility operating record, and dates and types of training will be kept on file and will be accessible at the facility for review upon request. Training will primarily be handled by Renewable Resources, but others may also be used as appropriate.

New employees will be subject to an on-the-job training program, and will be trained within six months of employment. Training updates are conducted routinely, addressing all procedures and requirements.

Copies of this Revised Plan of Operations and Emergency Response Plan will be available at the facility for use by the Operator and facility personnel. Employees will be trained on the application of these plans.

4.4 MONTHLY REPORTS

4.4.1 NDDH Reporting Requirements

Renewable Resources will complete and submit monthly reports to the NDDH. The monthly reports are due on or before the tenth (10^{th}) day of the each month. The monthly report must cover facility activities during the previous month and include, but not be limited to, the following information:

- The date, type, and amount of waste received and the source of such waste;
- The date, type, and amount of waste treated and the destination of such material;
- Amounts, locations of any treated waste beneficially used;
- Progress made toward meeting settlement terms since last report;
- Any issues which had occurred at the facility such as spills, unauthorized access, etc.;
- Inspections conducted by facility personnel and related pictures, diagrams, checklists, and/or maps to help document Site conditions; and
- Any foreseeable changes to the facility which may require the facility to apply for a permit modification.

The monthly report form is located in Appendix D for reference.

4.4.2 NDIC Reporting Requirements

Renewable Resources will complete monthly treating plan reports to the NDIC on Form 5P. The monthly reports are due on or before the first day of the second succeeding month. The monthly report must cover facility activities during the previous month, and include, but not be limited to, the following information:

- Beginning of the month inventory;
- Amount of waste oil received and the source of such waste oil;
- Volume of oil sold;
- Amount and disposition of water;
- Amount and disposition of residue waste, fluid, or solid; and
- End of month inventory.

4.5 ANNUAL REPORT

4.5.1 NDDH Reporting Requirements

An annual facility report should be prepared and submitted to the NDDH by March 1^{st} of each year. The annual report must cover facility activities during the previous calendar year, and include, but not be limited to the following information:

- Name and address of facility;
- Calendar period covered by the report;
- Monthly summary of waste types, quantities accepted, and origin of waste;
- Monthly summary of waste treated by weight and/or volume;

- Monthly summary of material beneficially used by weight and/or volume, and destination;
- Training documentation;
- Summary of changes in operation, construction and process changes;
- Review of water quality;
- Conclusions and recommendations; and
- Any further information requested by the NDDH.

In addition to this report, an Annual Groundwater Monitoring Plan, Discharge Monitoring Report, and Annual Location Record are also required to be submitted annually to the NDDH. Please refer to the Revised Groundwater Monitoring Plan and Stormwater Pollution Prevention Plan for additional information.

4.5.2 NDIC Reporting Requirements

An annual report will be prepared and submitted to the NDIC by June 1st of each year. The annual report must cover facility activities during the previous calendar year, and include, but not be limited to, the following information:

- Name and address of the facility;
- Calendar period covered by the report;
- Schematic drawing or drawings of the treating plant Site, drawn to scale, detailing all facility and equipment including:
    - size, location, and purpose of all tanks;
    - the height and location of all dikes as well as calculated containment volume;
    - all areas underlain by a synthetic liner and the leak detection system;
    - location of all flowlines;
    - location of all topsoil stockpiles; and
    - road access to the nearest public road.
- Present inventory of fluids and solids on location;
- Future plans for next year; and
- Any further information requested by the Director of NDIC.

5.0 Construction and Closure Requirements

5.1 CONSTRUCTION

A permit to construct and operate must be obtained from the NDDH and NDIC prior to commencing any future construction activities. All proposed changes to the facility are subject to regulatory approval. A design drawing of proposed changes must be submitted to the NDDH prior to making any changes to the facility. The submitted design drawings must include the location of labeled facility structures and their approximate dimensions.

The proposed layout for the Site can be referenced from Figure 2 and the Design Report.

5.2 SCHEMATIC DRAWINGS

Schematic drawings (i.e., record construction drawings signed by a North Dakota-registered P.E.) of the facility, drawn to scale, will be submitted to the NDDH and NIDC after construction. The schematic drawings will include the following:

- Size, location, and purpose of all structures;
- Size, location, and purpose of all tanks;
- Height and location of all berms;
- Calculated containment volumes;
- All areas underlain with synthetic lines and the leak detection system;
- Location of all flowlines; and
- Road access to the nearest existing public road.

5.3 SURVEY PLAT

Once construction is completed, a survey plat certified by a profession land surveyor (PLS) will be submitted depicting the location of the facility and the center of the Site with reference to true north and nearest lines of governmental section. The plat will include the latitude and longitude of the center of the facility, the ground elevation, and the legal street address. The plat must be submitted to the NDDH and NDIC within 30 days following completion of construction.

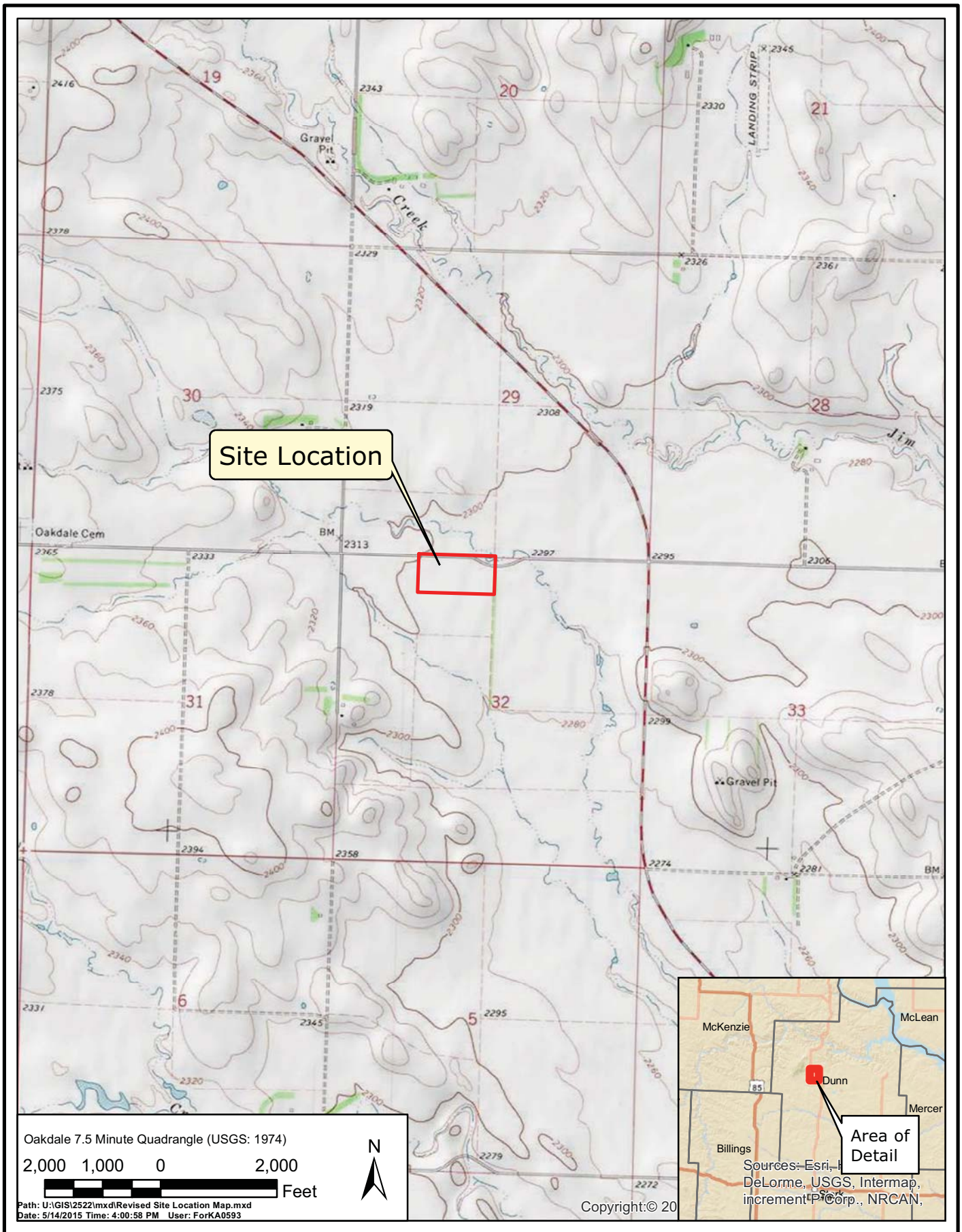
5.4 FACILITY CLOSURE PLAN

Before permanent closure and reclamation of the facility, Renewable Resources is obligated to submit a closure plan to the NDDH and NDIC for approval. Any liability under the facility's bond will not be formally released until reclamation is finished and approved by the NDDH and NDIC.

Please refer to the Renewable Resources Closure Plan for greater detail on the requirements for Site reclamation and closure.

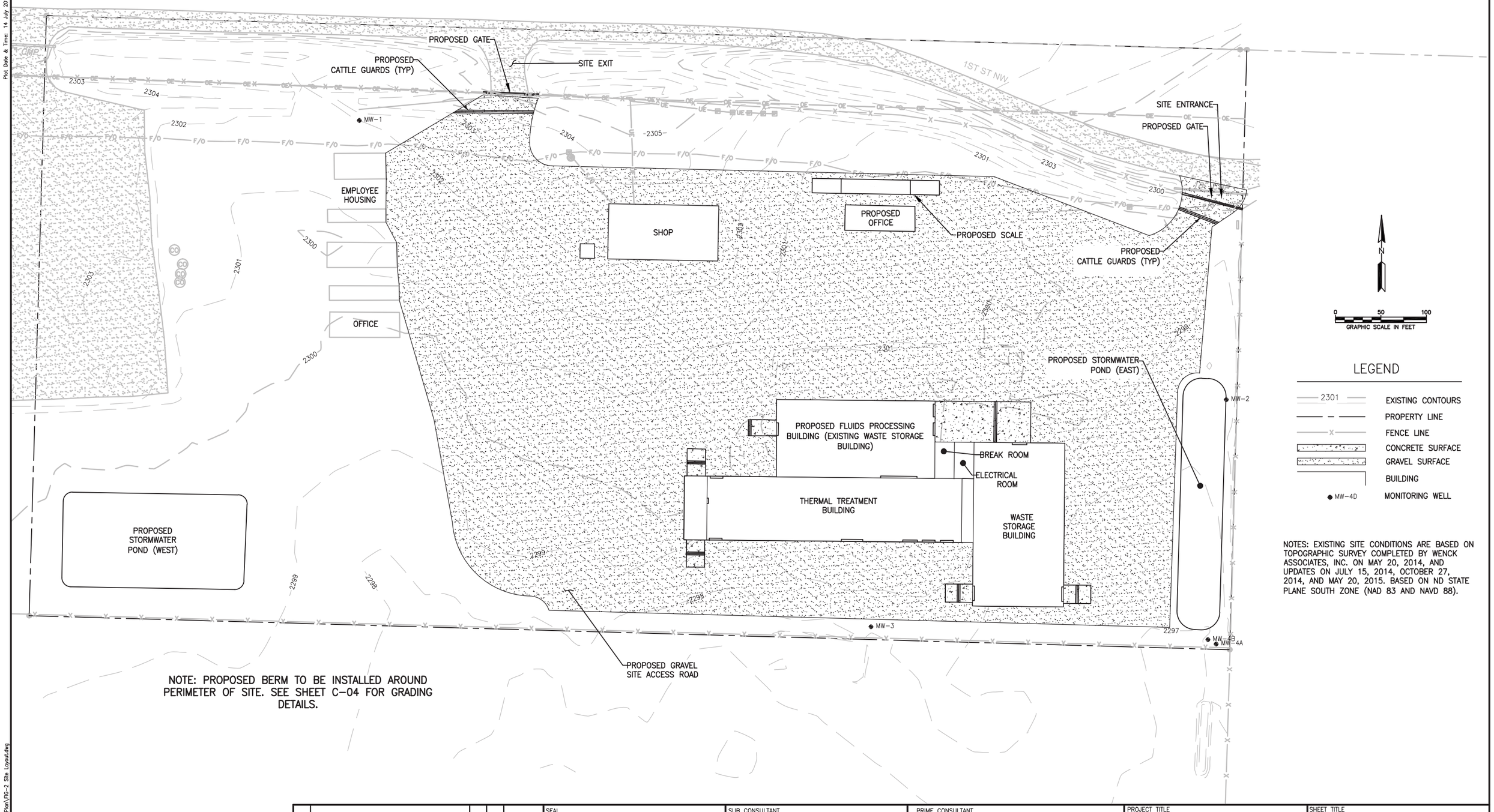
Figures

1. Site Location Map
2. Proposed Site Layout Map



RENEWABLE RESOURCES, LLC	WENCK ASSOCIATES Responsive partner. Exceptional outcomes.	JUL 2015
Site Location Map		Figure 1

Plot Date & Time: 14 July 2015 1:28 PM



LEGEND

- 2301 — EXISTING CONTOURS
- PROPERTY LINE
- FENCE LINE
- CONCRETE SURFACE
- GRAVEL SURFACE
- BUILDING
- MW-4D — MONITORING WELL

NOTES: EXISTING SITE CONDITIONS ARE BASED ON TOPOGRAPHIC SURVEY COMPLETED BY WENCK ASSOCIATES, INC. ON MAY 20, 2014, AND UPDATES ON JULY 15, 2014, OCTOBER 27, 2014, AND MAY 20, 2015. BASED ON ND STATE PLANE SOUTH ZONE (NAD 83 AND NAVD 88).

NOTE: PROPOSED BERM TO BE INSTALLED AROUND PERIMETER OF SITE. SEE SHEET C-04 FOR GRADING DETAILS.

REV	REVISION DESCRIPTION	DWN	APP	REV DATE

SEAL

SUB CONSULTANT

PRIME CONSULTANT

WENCK ASSOCIATES
Responsive partner. Exceptional outcomes.
3303 FIECHTNER DRIVE FARGO, NORTH DAKOTA (701) 297-9600 (701) 297-9601

PROJECT TITLE
PLAN OF OPERATIONS

RENEWABLE RESOURCES, LLC

KILLDEER, NORTH DAKOTA

SHEET TITLE
PROPOSED SITE LAYOUT

DWN BY	CHK'D	APP'D	DWG DATE
EBH	AJF	RWA	JULY 2015

SCALE AS SHOWN

PROJECT NO. 2522-16

SHEET NO. FIGURE 2

REV NO.

I:\Drafting\2522\0016\Operations Plan\FIG-2 Site Layout.dwg

Appendix A

Industrial and Special Waste Acceptance Plan

WENCK File #2522-16
July 2015

Industrial and Special Waste Acceptance Plan

Renewable Resources, LLC Permit SW-0363
Dunn County, North Dakota

Prepared for:

Renewable Resources, LLC

P.O. Box 657
Killdeer, North Dakota
58640

WENCK ASSOCIATES

Responsive partner.
Exceptional outcomes.

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Table of Contents (Cont.)

Table of Contents (Cont.)

IN-TEXT TABLES

TABLES

APPENDICES

1.0 Introduction

Renewable Resources, LLC (Renewable Resources) is in the business of oilfield waste treatment and recycling, soil remediation, and trucking. Renewable Resources owns a treatment processing facility in Killdeer, North Dakota (Site), which is permitted as a solid waste transfer station and thermal treatment unit under North Dakota Department of Health (NDDH) Solid Waste Management Permit SW-0363.

The Site is approximately 20 acres in size and includes a transfer station, thermal treatment units and related structures. Renewable Resources is also seeking a North Dakota Industrial Commission (NDIC) Treating Plant Permit (Case # 23376) to perform oilfield solid waste and fluids treatment & recovery at the Site.

The primary waste materials accepted at the Site are "Special Wastes," as defined under North Dakota Century Code (NDCC) 23-29-03.16. In addition, Renewable Resources accepts other non-hazardous, "Industrial" waste streams, as discussed within this Industrial and Special Waste Acceptance Plan (WAP). Primarily, these other waste streams are related to the transportation of oil and natural gas, and saltwater injection wells – specifically petroleum spill cleanup wastes, saltwater spill cleanup wastes, and vehicle wash sludge.

Under the Request for Permit Renewal/Modification Application, Renewable Resources requested all regulatory agencies to clearly define the limits of their jurisdiction over the Site. This WAP has been prepared to be a management document outlining Site waste acceptance procedures and guidelines for approval by NDDH and NDIC. Following this WAP will help ensure that it will be possible to recycle many of the accepted materials after treatment at the Site. Through proper identification, separation, phasing, and assessment of all incoming waste at the Site, Renewable Resources will be able to better operate the Site and produce useable byproducts from the

1.1 PLAN OBJECTIVES

The waste acceptance procedures set forth in this plan are intended to provide sufficient procedural guidelines and requirements to assure compliance with the current guidelines and regulatory requirements of the Renewable Resources - Solid Waste Management Permit (see Appendix A for Permit SW-0363). The Operator shall be familiar with the basic rules for determining the exempt or nonexempt status of oil and gas exploration and production (E & P) wastes, as published by the United States Environmental Protection Agency (USEPA) (see Appendix B). Primarily, exempt wastes from Resource Conservation and Recovery Act (RCRA) Subtitle C Regulations will be permitted at this Site. Non-exempt special wastes may also be accepted, if they pass the testing and acceptance criteria set forth in this WAP. Hazardous wastes will not be allowed, under any circumstances, to be accepted at this facility. The objectives of this WAP are:

- Protect public health and the environment by ensuring that wastes are properly evaluated and managed;
- Identify wastes for acceptance at the Site; and,
- Address waste screening and evaluation of specific wastes to be accepted.

This management plan will be submitted to the NDDH for review and approval. Any future amendments or changes in management practices or other policies will be submitted to the NDDH for approval prior to implementation. If necessary, a more intensive acceptance criterion may be established by the Operator at any time to provide additional assurance of the acceptability of waste material.

1.2 SITE BACKGROUND

Renewable Resources provides a unique contract service that removes organic contaminants from RCRA-exempt E & P oilfield waste and other petroleum-impacted industrial waste (e.g., soils impacted by petroleum spills from pipelines, truck or rail accidents, etc.). The company received NDDH Solid Waste Management Permit SW-0363 on September 10, 2012. This permit authorized Renewable Resources to operate two Solid Waste Management Units: a Transfer Station and a Thermal Treatment Unit and Related Structures.

The Site started accepting waste on September 15, 2012. On September 16, 2013, NDDH granted the original Beneficial Use Permit allowing treated soil materials to be used "for treatment/solidification of oilfield waste only and placement was restricted to oilfield waste disposal pits approved by and acceptable to the North Dakota Industrial Commission - Oil and Gas Division." Please refer to Appendix C for this documentation.

On May 5, 2014, Renewable Resources was issued an Administrative Consent Agreement Case No. 14-001 SWM (ACA) issued by the NDDH to resolve the permit violations presented in the NDDH Notice of Violation dated January 9, 2014. Renewable Resources has made much progress towards resolving the terms of the ACA. As part of the ACA terms, Renewable Resources has also applied for a Treating Plant Permit under the North Dakota Industrial Commission – Oil and Gas Division. This will allow the NDIC to have majority jurisdiction over the Site which predominantly treats E & P wastes to recover saleable crude oil for market.

2.0 Waste Types and Acceptance

Most of the materials accepted at Renewable Resources are generated by oil and gas exploration and production companies operating (e.g., E & P waste) in western North Dakota. The type of waste material generated by such regular customers will be relatively similar from load to load, and will require routinely less intensive waste acceptance procedures, compared to customers that generate a variety of waste types on a more sporadic or one-time basis. This section provides specific information on the types of waste that are permitted to be accepted at Renewable Resources.

2.1 EXISTING FACILITY OPERATIONS

Renewable Resources is currently permitted by the NDDH, under Solid Waste Transfer Station Permit SW-0363, to thermally treat E & P wastes, but is restricted to processing the following types of waste:

- RCRA-exempt natural gas and crude oil E & P wastes;
- Petroleum-contaminated wastes associated with leaking underground storage tanks;
- Petroleum-contaminated wastes associated with releases from aboveground storage tanks;
- Natural gas and/or crude oil-impacted wastes associated with pipeline, trucking or rail transportation releases;
- Floor drain and sump sludges associated with car wash facilities and automotive repair facilities; and
- Other types of special waste approved by the NDDH.

Under the proposed facility operations described in Section 2.2 the Site may accept liquid waste in accordance with the NDIC Treating Plant permit application and pending permit. Acceptable incoming waste may be received at Renewable Resources in bulk or in containers.

Renewable Resources does not intend to dispose of any fluid or solid wastes at this Site. The Site's intent is to effectively remove contaminants via separation and thermal treatment in a manner consistent to facilitate byproduct material recycling and beneficial use. Waste acceptance criteria based on the paint filter test or 50 parts per million (PPM) benzene are suited more for permanent disposal facilities. Renewable Resources is a treatment and processing facility only and has a pending NDIC application for fluids treatment. Renewable Resources provides fluids processing and solids separation, as well as thermal treatment of solid waste down to levels acceptable for beneficial reuse.

2.2 PROPOSED FACILITY OPERATIONS

To meet the ever growing demand to appropriately manage and treat E & P wastes in western North Dakota, Renewable Resources submitted a Treating Plant Permit Application to the NDIC in September 2014. The application proposes to allow the Site to operate three separate treatment processes and three operating scenarios; 1) E & P Fluids/Solids Separation, 2) E & P Thermal Treatment, and 3) E & P Crude Oil Recovery. To coincide with the treating plant application and proposed new treatment buildings, Renewable Resources also submitted new Permit to Construct (PTC) applications to the NDDH Air Quality Division to permit the Site's proposed thermal treatment units as described in the following table.

Table 2-1: Equipment and Treatment Process

Equipment	Treatment Process	Building Location	Processing Rate
Fluids/Solids Separation	E & P Fluids	Fluids Processing Bldg.	100 BBL/Hr
Direct Thermal (Main)	E & P Cuttings, Industrial Waste	Thermal Treatment Bldg.	100 Tons/Hr
Indirect Thermal	Invert/Oil Recovery, Spill Materials	Thermal Treatment Bldg.	10 Tons/Hr
Mobile Direct Thermal (Secondary)	E & P Cuttings, Industrial Waste	N/A	50 Tons/Hr

- The fluids separation system consists of process filtering equipment and storage tanks.
- The main E & P processing system consists of a 100 MMBtu/hr direct thermal treatment unit (drum dryer), baghouse, and vapor recovery system (scrubber). This unit is proposed to treat freshwater, saltwater, and oil-impacted cuttings and other approved industrial wastes.
- The indirect system consists of a 6 MMBtu/hr indirect thermal treatment unit (Auger-Screw Drum Dryer) and vapor recovery system (scrubber). The indirect system will be used to recover crude oil/mineral spirits and process freshwater from mainly E & P wastes. This system will be used mainly to recover any crude oil/mineral spirits and process freshwater out of transportation-related spill materials, if in large enough volume.
- The secondary thermal treatment process consists of a smaller 40 MMBtu per hour direct thermal treatment unit. This unit is proposed to be a mobile treatment unit that will be moved from site to site, or operated onsite if the main thermal treatment unit is down for maintenance.

Renewable Resources will be required to submit a permit modification application (submitted under separate cover) to the NDDH for the continued treatment of all non E & P wastes received at the Site. The NDIC Treating Plant Application will not cover industrial wastes, sludges, or transportation spill materials. Therefore, the NDDH solid waste transfer facility permit will still be required for the continued operation and reporting of these thermally treated wastes at the Site.

2.3 ACCEPTABLE WASTES

The permitted waste streams that can presently be accepted at Renewable Resources fall into the following two categories, Special and Industrial.

2.3.1 Special Waste

"Special Waste" is defined as solid waste that is not a hazardous waste regulated under NDCC 23-20.3 and includes waste generated from energy conversion facilities; wastes from crude oil and natural gas exploration and production; waste from mineral and ore mining, beneficiation, and extraction; and waste generated by surface coal mining operations. The term does not include municipal waste or industrial waste.

The primary Special Wastes accepted at Renewable Resources fall into the category described by RCRA Section 3001(b) (2) (A): "Drilling fluids, produced waters, and other wastes associated with the exploration, development, or production of crude oil or natural gas or geothermal energy." Wastes included in this category are exempt from RCRA Subtitle C hazardous waste regulations (see Tables 1 and 1A), although they are still subject to Subtitle D solid waste regulations and applicable state rules. Specifically, the primary E & P waste streams accepted at Renewable Resources include the following wastes (Appendix D):

- Drill cuttings;
- Basic sediment and other tank bottoms (refer to Section 3.2.2) from storage facilities that hold product and exempt waste;
- Accumulated materials such as hydrocarbons, solids, sands, and emulsion from production separators, fluid treating vessels, and production impoundments (refer to Section 3.2.2);
- Pit sludge and contaminated bottoms from storage or disposal of exempt wastes (refer to Section 3.2.2);
- Gas plant dehydration wastes, including glycol-based compounds, glycol filters, and filter media, backwash, and molecular sieves;
- Work-over wastes;
- Materials ejected from a producing well during blowdown (refer to Section 3.2.2);
- Cooling tower blowdown;
- Pipe scale, hydrocarbon solids, hydrates, and other deposits removed from piping and equipment prior to transportation (refer to Section 3.2.2);
- Produced sand or fracking sand gel that is nonradioactive;
- Hydrocarbon-bearing soil;
- Pigging wastes from gathering lines (refer to Section 3.2.2);
- Wastes from subsurface gas storage and retrieval, except for the non-exempt wastes in USEPA's Publication "Exemption of Oil and Gas Exploration and Production Wastes from Federal Hazardous Waste Regulations" (see Appendix B); and
- Constituents removed from produced water before it is injected or otherwise disposed of down Class II injection wells.

Fluid E & P wastes proposed for acceptance at this facility include:

- Produced water (refer to Section 3.2.2);
- Drilling fluids;
- Rigwash;
- Geothermal production fluids (refer to Section 3.2.2);
- Well completion, treatment, and stimulation fluids;
- Packing fluids;
- Liquid hydrocarbons removed from the production stream but not from oil refining (refer to Section 3.2.2);
- Waste crude oil from primary field operations;
- Light organics volatilized from exempt wastes in reserve pits, impoundments, or production equipment;
- E & P fluids with high solids content (>25%) (refer to Section 3.2.2);
- Flowback; and
- Petroleum (oily) spill material from locations or lease sites prior to transport.

This Site may accept other types of waste upon NDDH/NDIC approval.

2.3.2 Non-Hazardous Industrial Waste

"Industrial waste" is defined as solid waste, which is not a hazardous waste regulated under Chapter 23-20.3, generated from the combustion or gasification of municipal waste and from industrial and manufacturing processes. The term does not include municipal waste or special waste. Renewable Resources does not intend to accept municipal waste combustor ash at the Site. However, acceptable industrial waste may include, but is not limited to, residues or spills of any waste resulting from the following:

- Petroleum-contaminated waste including soil or other material that has been impacted by leaking underground or aboveground storage tanks;
- Natural gas and/or crude oil-impacted wastes associated with pipeline, truck or rail transportation releases;
- Floor drain and sump sludge associated with car or truck wash facilities and automotive repair facilities;
- Saltwater-contaminated waste; and
- Petroleum-contaminated stormwater.

Waste will typically be received in bulk form. In addition to the bulk loads, totes and drums containing acceptable materials may be received. All loads, containers and totes will be inspected to ensure the material is consistent with the acceptance procedures as further defined herein. All sealed drums will be opened to verify the material contained is an acceptable waste.

2.4 PROHIBITED WASTES

Waste from an unknown origin and not certified by the waste generator as non-hazardous, exempt-waste will not be accepted at Renewable Resources. The only exception to this will be if the wastes are first stringently tested and characterized, including the following: 1) adequate, representative samples of the waste material are taken, 2) analyzed (see Appendix E) by a qualified testing company, and 3) found to be acceptable, non-hazardous waste material (refer to Appendix F).

The following wastes will not be accepted at Renewable Resources:

- Municipal or household waste and putrescible waste;
- Animal carcasses;
- Waste grain, seed, and elevator screenings;
- Pesticide containers;
- Lead-acid batteries;
- Used oil;
- Scrap metal;
- Metal appliances;
- PCB waste/oils;
- Hazardous wastes [i.e., ignitables (solvents, paints and fuels), corrosives (acids and alkalies), reactives, toxicity characteristic wastes, and listed wastes];
- Electronic waste (televisions, computers, monitors, printers, copiers, materials containing circuit boards, ballasts, capacitors, etc.);
- Mercury-containing devices (fluorescent lighting, switches, thermometers, thermostats, etc.);

- Hazardous materials;
- Manure (not accepted for disposal, but may be used in composting);
- Septic tank pumpings;
- Regulated radioactive wastes or Naturally Occurring Radioactive Material (NORM) wastes or Technically Enhanced Naturally Occurring Radioactive Material (TENORM) wastes above 5 picoCuries per gram (pCi/g) (Ra-226 + Ra-228);
- Agricultural waste;
- Inert waste;
- Asbestos-containing materials;
- Infectious wastes;
- Rendering and slaughterhouse waste;
- Waste that could spontaneously combust or that could ignite other waste because of high temperatures;
- Foundry waste;
- Ash from incinerators, resource recovery facilities, and power plants;
- Paint residue, paint filters, and paint dust; and
- Fiberglass, urethane, polyurethane, and epoxy resin waste.

3.0 Waste Acceptance Procedures

This section is intended to provide detailed procedures to be used to determine if waste is acceptable at Renewable Resources. The procedures enable the Operator to better plan for the receiving and treatment of waste at the Site, and to assure that all necessary business arrangements with the waste generator are complete before the waste material is delivered at the Site.

In accordance with Permit SW-0363, waste volume receipts are expected to reach up to 438,000 tons on an annual basis. Waste acceptance may not exceed 438,000 tons of special and industrial waste per year resulting from releases associated with underground storage tanks, aboveground storage tanks, natural gas and/or crude oil-impacted wastes associated with pipeline, truck and rail transportation releases, sump sludges associated with car wash facilities. This facility is not approved for municipal solid waste, medical waste or any other material not identified in an approved waste acceptance plan and this permit, unless specifically approved by the NDDH and/or the NDIC.

The Site proposes to 873,600 barrels/year of E & P fluids waste, pending the approval of the NDIC Treating Plant Permit Application.

Renewable Resources proposes to utilize a scale to identify the weight of all waste received for acceptance, and a permanent record of each incoming load will be kept in accordance with NDDH requirements. Scales will be licensed and operated pursuant to the North Dakota Public Service Commission and other applicable regulations. In addition to the weight (or volume during scale downtime), the date, generator name, hauler name, and waste type will be recorded.

The acceptance procedure is a three-part process and is comprised of the following steps:

- Pre-screening;
- Waste profiling and documentation; and
- Waste inspection and verification.

3.1 PRE-SCREENING

The pre-screening process is the initial waste acceptance step used by the Operator to determine if a potential waste can be accepted at the Site. It is especially important for uncommon or new waste streams. Pre-screening operations consists of:

- Phone interview(s) to determine the general material makeup or description, volume, source, waste generator, or other pertinent information.
- In the case of a new waste stream, consultation with regulations, regulators, and/or technical consultant to determine waste acceptability.

Pre-screening helps the Operator and waste generator avoid unnecessary transportation of the waste to the Site if it becomes clear that the material will be unacceptable. If the waste is determined to be acceptable, the next step in the acceptance procedure is initiated.

3.2 WASTE PROFILING AND DOCUMENTATION

The next step in waste acceptance procedure for the Site is waste profiling and documentation. Prior to the delivery of a waste material at Renewable Resources, a waste generator must submit to the Operator a completed Intake Generator Form and Generator Certification for each type of waste proposed to be accepted at the facility (see Appendix G). The Intake Generator Form requires the generator to provide background information on the generator and transporter of the waste, a detailed waste profile, and a certification that the waste is non-hazardous, and does not contain materials, that if accepted, would cause the facility to be in violation of Solid Waste Management Permit SW-0363. More specifically, the following information will be required for submittal to Renewable Resources:

- Name and address of the generator;
- Generator contact person and telephone number;
- The source of the waste (facility's name and legal property description);
- The name of the company managing the waste, if other than the generator;
- Physical description of the waste (e.g., solid, sludge);
- Quantity of waste (e.g., tons, yards, drum, etc.);
- Description of the process through which the waste was generated (i.e., oilfield drill cuttings (either freshwater cuttings, invert mud, saltwater cuttings, or combinations), reserve pit mud, tank bottoms, etc.);
- Appropriate laboratory analysis specific to the waste, if not uniquely associated with crude oil and natural gas exploration and production, to identify any hazardous characteristics; and
- Signed statement by the generator that, to their knowledge the waste is not, by definition, a hazardous or regulated waste, and the waste does not contain NORM/TENORM above 5 pCi/g.

This information shall be retained for the life of the Site, and copies of such information will be included with the Annual Report.

Generators regularly producing a waste that is consistent in its physical and chemical properties need only submit the completed Waste Profile Sheet once or annually to the Operator per site or location. This documentation of the waste characterization should be updated annually or more frequently should the waste material significantly change in nature. The Waste Profile Sheet submitted by the generator or hauler of the waste to the Operator for each delivery of waste material, shall describe any significant differences noticed in the waste material from the information contained on the waste profile sheet for that particular waste material.

3.2.1 Waste Characterization and Sampling

Where chemical analysis is necessary to determine the acceptability of a waste material (i.e., non-exempt industrial waste), the generator shall arrange for the sampling and laboratory testing of the material according to the specific facility parameter lists approved by the NDDH, and provided by Renewable Resources to the waste generator. If the Operator is unsure or unable to determine the acceptability of a particular waste material from the laboratory test results submitted by the generator, the Operator shall request assistance from the technical consultant or the NDDH before deciding upon the acceptability of the waste material in question.

Petroleum-contaminated and other industrial waste streams may require laboratory testing to ensure applicable wastes meet toxicity levels as defined by USEPA. The minimum number of soil samples needed for analysis is based on the volume of contaminated soil is as follows:

Table 3-1: Contaminated Soil Sampling Information

Volume of Contaminated Soil (cubic yards)	Number of Samples
<10	0
10-50	1
50-500	2
500-1000	3
1000-2000	4
2000-4000	5
Each additional 2000	One additional sample

Soil samples are necessary to evaluate and document contamination levels in the soil to be treated. Renewable resources will obtain a composite soil sample, or direct the generator, by digging a minimum of one foot into the pile at least three places within the pile before collecting subsamples. To avoid cross-contamination, subsamples should be taken using clean disposable gloves (and other clean sampling utensils) at each sample location (refer to NDDH "Procedures for the Collection of Soil Samples at Underground Storage Tank (UST) Sites"). Mix equal portions of each subsample to obtain a composite sample. Completely fill each sample vial so that no headspace exists, wipe soil from the vial threads, and seal the vial using a cap with a Teflon septum. Label the vial, wrap it in aluminum foil, and place in a covered cooler with ice for transport to a laboratory for analysis.

Please refer to Table 2 for specific parameter lists and Appendix F for the list of toxicity characteristics constituents and applicable levels for acceptance.

3.2.2 NORM/TENORM Wastes

Natural gas and crude oil production wastes require rigorous and specific profiling because of the possible presence of NORM/TENORM (Appendix H). These wastes include:

- Accumulations of solids, scale, sediment, production sand, emulsion, sludge and other tank bottoms from storage facilities, separators, vessels, tanks, and production impoundments that hold product or RCRA exempt waste;
- Pipe scale, hydrocarbon solids, hydrates, and other deposits removed from tubular goods, piping, casing, filters, clean-out traps and other equipment that are not otherwise RCRA-exempt wastes;
- Pigging wastes from gathering lines; and,
- Waste material suspected to contain TENORM, or likely to have accumulated NORM in concentrations exceeding five (5) pCi/g.

If accepted, the following fluid wastes (and their separated solids) will also be reviewed for the possible presence of NORM/TENORM:

- Produced water;
- Geothermal production fluids;
- Liquid hydrocarbons removed from the production stream but not from oil refining; and
- E & P fluids with high solids content (>25%) (depending on origin).

Before accepting any of the solid wastes above, these production wastes must be analyzed specifically for Radium-226 and Radium-228 concentrations (Ra-226 and Ra-228) by a State-approved laboratory, and using approved methodology.

The acceptable NORM levels for acceptance at the Site are:

- Sum of Ra-226 and Ra-228 concentrations less than 5 pCi/g (Ra-226 + Ra-228 < 5 pCi/g)

If, as a result of the evaluation of the physical or chemical properties of the waste, a waste material is determined to be unacceptable for acceptance at Renewable Resources, the Operator shall promptly notify the generator, and the waste will not be permitted for acceptance at the facility.

3.3 WASTE INSPECTION AND VERIFICATION

The final waste acceptance procedure is waste inspection and verification. No waste materials shall be accepted at Renewable Resources without having satisfactorily completed the pre-screening and profiling and documentation acceptance procedures described above. The transporter of the waste shall deliver to the Operator a completed "Hauling Manifest" to assure that the documentation of the waste materials is complete and satisfactory.

3.3.1 Incoming Load Inspection

The Operator shall visually inspect each load of waste to determine if the load of waste has essentially the same physical and chemical characteristics as shown by the documentation submitted by the generator on the waste material. If necessary, the Operator may extract or obtain a sample of the waste for observation and/or testing prior to acceptance of the material at the facility.

All shipments of waste shall remain on the transport vehicle in the receiving area of the Site until the Operator has completed the evaluation of the waste and has accepted the load. All sampling of bulk loads of wastes will occur while the waste is on the transport vehicle.

Wastes with free liquids will be accepted for treatment under the NDIC permit application.

If a transporter presents a Hauling Manifest on a load of waste that contains a discrepancy with information on file (i.e., waste profile sheet) regarding the generator, the waste or other pertinent information, such discrepancies may be corrected through contact with the generator, transporter, or other qualified official. Incoming loads will remain in the receiving area until any discrepancies have been resolved. If a significant discrepancy cannot be resolved, the load shall be rejected. Upon inspection of a load of waste and the load is determined to be acceptable, the waste shall go directly to the proper processing building for treatment.

3.3.2 Random 1% Sampling for Production Wastes

Renewable Resources will randomly sample at least one of every 100 incoming loads of the production subset of special waste accepted at the Site for processing for the parameters of total petroleum hydrocarbons (TPH) as diesel range organics (DRO); TPH as gasoline range organics (GRO); benzene, toluene, ethyl benzene, and xylene (BTEX); ignitability, RCRA metals, NORM/TENORM radioactivity level for Ra-226 and Ra-228, and any other tests as determined by the NDDH (see Table 2 for the testing parameter list).

Renewable Resources shall provide appropriate educational materials for waste haulers and waste generators on at least an annual basis, for new haulers or generators, and more often as needed, for repeat problems, or as needed to ensure their cooperation.

3.3.3 Radiation Monitoring Procedures

Renewable Resources uses a handheld radiation detector (i.e., SE International M^4 Meter) to detect possible problem radiation levels of incoming waste loads to the Site prior to acceptance for treatment. A designated operator will use the radiation detector to scan the waste hauling vehicles as the trucks enter the scale and determine the radiation exposure levels of the vehicle (in microroentgens per hour, or µR/hr). This device will be checked daily against background radiation levels (expected to vary between 5 and 10 µR/hr) to allow for the detection of possibly unacceptable radiation levels of waste. This monitoring detector will supplement the laboratory analyses of NORM/TENORM for tested wastes, not replace the analyses.

A NORM/TENORM radiation reading above twice background levels will be used to signal the operator that a possible radiation exceedance is present in the load. This will be used as criteria to "reject" the load, and require laboratory analysis of the contents to prove the levels are below the required 5 pCi/g before the wastes can be accepted at the Site. Note that determination of levels of pCi/g is not possible without actual laboratory determination. The on-site NORM detector meter reads in µR/hr, expressing in radiation exposure, not pCi/g or radiation concentration.

A daily log of background radiation readings will be maintained at the Site. The system shall be calibrated according to manufacturer's recommendation by a qualified contractor. As incoming trucks are manually scanned, the radiation meter measures the radiation levels emitted by the truck. This number is then compared to normal background radiation levels to determine if the level revealed is twice the predetermined background radiation level. In the event that the scanned level is twice background levels, the attendant will immediately notify the truck driver. The radiation level of the incoming waste will be recorded, and the waste will then be rejected according to the rejection procedures outlined in Section 4.4.

In the event that the radiation meter becomes temporarily inoperable, Renewable Resources may choose to accept incoming loads if all other criteria (pre-screening, waste profiling and documentation, and waste inspection and verification) for the waste are met, until the radiation meter is fixed.

4.0 Waste Handling Procedures

The Renewable Resources Site is intended for treatment and processing of special waste streams (both solid and liquid waste materials), with holding time for waste shipments prior to treatment kept as short as possible. Storage of waste is allowed for short durations at the Site in accordance with Permit SW-0363. All wastes accepted at the Site must be pre-screened and deemed acceptable prior to arrival at the Site. Any waste arriving at the gate without such prior authorization will be turned away until the proper acceptance procedures can be carried out.

Waste in containers shall be opened to verify data reported on the waste sheets. If this procedure reveals that the physical description of the waste differs significantly from the appearance of the waste, then all containers shall be subject to the approved waste sampling procedures for the Site.

All tools and equipment used for sampling shall be cleaned with water, appropriate cleaning solution and triple-rinsed with water. Solids and rinsate shall be collected and handled as generated waste at the Site. Samples of waste are to be handled and managed in the same manner as the original waste. Samples of unacceptable waste are to be returned to the generator or shipped to an approved disposal facility as per the generator's instructions.

Loads of waste that are frozen in transit may be received and shall be thawed until a sample of the material can be obtained for analysis. If conditions warrant, the generator may submit a sample of the waste taken at the point of generation. If this procedure is used, a visual inspection shall be made to determine the compatibility of the physical appearance of the sample and the load of waste being inspected.

Further waste handling procedures are described in the Revised Plan of Operations for the Site.

4.1 NORM TESTING

All of the following natural gas and crude oil production wastes (i.e. exempt or non-exempt production waste) shall be analyzed for NORM; specifically, Radium-226 and Radium-228 concentrations by a state-approved laboratory, prior to acceptance at this Site:

- Accumulated materials, including: solids, scale, sediment, production sand, emulsion, sludge and other tank bottoms from storage facilities, separators, heater treaters, vessels, tanks, and production impoundments that hold product or exempt waste;
- Pipe scale, hydrocarbon solids, hydrates, and other deposits removed from tubular goods, piping, casing, filters, clean-out traps and other equipment;
- Pigging wastes from gathering lines; and
- Any waste material suspected to contain TENORM or have accumulated NORM in concentrations exceeding 5 pCi/g.

Appropriate composite samples of waste to be accepted at the Site will be analyzed for Ra-226 and Ra-228 prior to acceptance at the Site. If the sample results exceed the 5 pCi/g, the maximum levels allowable by the state of North Dakota, the waste will not be accepted. Samples must be sent to an approved lab for analysis and verification. The owner/operator shall note the source, amount, generator and other identifying information about the rejected waste, and shall notify NDDH within five (5) days of the rejection of such material.

If the laboratory-measured NORM concentrations equal or exceed the maximum allowable levels as set forth above, the waste shall be considered radioactive. Radioactive wastes are not allowed for treatment at Renewable Resources, see Section 2.4. Laboratory results must be submitted with the annual report as required in the operating permit. Renewable Resources is not permitted to blend or mix any waste material during acceptance procedures to reduce NORM or TENORM levels.

4.2 RANDOM SCREENING OF PRODUCTION-TYPE WASTE

Random special waste characterization screening will be conducted by Renewable Resources. Random composite samples of waste from 1% of the incoming loads of the production waste subset of special waste will be collected and analyzed for Total Petroleum Hydrocarbons (TPH) as Diesel Range Organics (DRO) and Gasoline Range Organics (GRO); RCRA metals; Technologically-Enhanced Naturally Occurring Radioactive Materials (TENORM) for Ra-226 and Ra-228; Benzene, Toluene, Ethyl benzene and Xylene (BTEX); and ignitability. NDDH will be informed of the sampling protocol and schedule and will be afforded the opportunity to observe sampling and take a split sample for duplicate analysis, if deemed appropriate. The parameters list for analysis is given in Table 3.

Wastes selected for random screening will be sampled and analyzed at the gate (scalehouse).

4.3 SAMPLE COLLECTION FOR LABORATORY ANALYSIS

Procedure:

1. Prior to collecting sample, label sample container in the field using a waterproof permanent marker. Labels will include the following information:

    - Site name;
    - Sample identification code;
    - Date/time;
    - Sampler's initials;
    - Preservation added (if any); and,
    - Analysis to be performed.

2. To minimize the possibility of cross-contamination a new pair of disposable (i.e., nitrile or latex) gloves should be used for each sample collected. When using a sampler, wash it with a detergent solution (e.g. Liquinox®, Alconox® or equivalent) rinse, and dry it before each use. Samples collected for non-volatile laboratory analyses will be

immediately placed in appropriate containers, placed on ice and shipped to the laboratory for analysis.

3. Method 5035 is required when sampling wastes for volatile contaminants. Method 5035 contains four (4) separate methods for analyzing volatiles in soil. In all cases, the sample vials will be provided from the laboratory performing the analytical services. The vials/glassware will either contain in them, or be provided in a separate vial, all necessary preservatives. The different methods include the following:

   - *Methanol preservation* – This method is used when a waste is suspected of containing high concentrations of volatile constituents. The method consists of placing a measured amount of soil (typically 5 to 15 grams) into a pre-weighed vial containing methanol. A minimum of two sample vials with preservative and one 2-ounce soil jar with zero headspace will be collected for this method in case reanalysis is needed. In addition, a dry weight sample must also be collected for this method. The sample is then immediately placed on ice and sent to the laboratory for analysis.
   - *Sodium bisulfate preservation* – This is a low level method similar to the methanol procedure, but instead, sodium bisulfate is the preservative, eliminating the dilution and giving a lower detection limit (i.e., usually less than 100 µg/kg). The method consists of placing a measured amount of soil (typically 5 grams) into a pre-weighed vial containing the sodium bisulfate preservative. A minimum of two sample vials with preservative and one 2-ounce soil jar with zero headspace will be collected for this method in case reanalysis is needed. In addition, a dry weight sample must also be collected for this method. The sample is then immediately placed on ice and sent to the laboratory for analysis.
   - *No preservation method* – This method is used for oily samples or samples of very high concentrations. The sample is immediately collected from the sampler and placed in a lab-provided container with zero headspace, placed on ice, and shipped to the laboratory.
   - *EnCore Sampler* – The EnCore sampler allows for the collection of a zero headspace sample. The sampler is used to collect either a 5 or 25 gram sample with no preservative. The sampler is plunged into the soil sample until the sampler core is filled with desired amount of soil. The sampler is then capped and sent to the laboratory on ice. The laboratory is then required to preserve the sample within seven (7) days of collection. In addition, a dry weight sample must also be collected for this method.

Table 4-1: Sample Methodology

Analyte	Method	Sample Container	Sample Volume	Field Preservation	Hold Time
RCRA Metals	Method 6010/7471	4 oz. glass	150 grams	None	180 days
TCLP RCRA Metals	Method 6010/7471	4 oz. glass	250 grams	None	180 days
PAHs	Method 8270	4 oz. glass	250 grams	None	14 days
DRO	WI Method	60 ml amber glass	25-35 grams	None (lab preserved w/methylene chloride)	14 days
GRO	WI Method	60 ml amber glass	25-35 grams	Methanol	14 days
Oil & Grease	Method 9071	4 oz. glass	30 grams	None	28 days
Total Organic Carbon	Method 415.1/9060	2 oz. glass	30 grams	None	28 days
Nitrate + Nitrite, Nitrogen	Method 353.2	2 oz. glass	30 grams	None	28 days
VOCs	Method 5035 Method 8260 MN466	40 ml amber glass	5 grams	Methanol (1:1 ratio)	14 days
VOCs	Method 5035 Method 8260 MN466	2 oz. glass	Full jar- no headspace	None (zero headspace)	14 days

4.4 WASTE REJECTION PROCEDURES

Wastes identified by Site personnel or the Operator as not acceptable are prohibited from acceptance at Renewable Resources. Suspicious or unknown wastes will not be accepted until the composition or chemical nature can be verified through analytical testing as acceptable wastes. Incoming wastes are evaluated for acceptability according to the waste acceptance criteria listed above. If a prohibited waste is identified during the waste identification and verification process, the entire load will be rejected from the Site. The hauler will be responsible for the removal and proper transportation of the material to the generator, or an appropriate disposal facility.

4.4.1 Unacceptable Waste Removal

If unacceptable or unapproved wastes (e.g., hazardous wastes) are encountered at the Site gate, or within the Site, they shall be removed, if possible, by the generator. If the unacceptable waste appears to be acutely hazardous, the waste will be quantified and described according to the best knowledge of the Operator. Shawn Kluver (Owner) and the NDDH will be notified immediately and the hauler will be tracked to assure appropriate disposal of the waste (see Appendix G – Load Rejection Form). The generator will also be notified of the waste rejection.

The Operator will document all inspections, any prohibited wastes discovered, and occurrences of hazardous or suspected hazardous waste. Upon identification of a hazardous waste or suspected hazardous waste, the NDDH will be notified immediately. All haulers violating this prohibited waste policy will be notified and will be subject to more frequent inspections at the discretion of the Operator.

4.4.2 Waste Unloading

A trained equipment operator is on duty daily at the tipping area within the new Waste Storage Building and the unloading area of the fluids processing area to screen loads as they are unloaded. The equipment operators screen every load entering the Site to the best extent possible, in addition to the Operator screening at the scale. If, during unloading, a suspicious waste is discovered, the equipment operator will investigate to determine if the material shall be accepted or rejected. If the suspected waste is found to be unacceptable, the waste will be rejected and the hauler will be notified of appropriate disposal options for the unacceptable wastes.

If unacceptable wastes are identified after the hauling vehicles have left, Renewable Resources will try and contact the hauler. If unsuccessful, however, Renewable Resources must take the necessary steps to remove the unacceptable waste from the Site, including subcontracting for equipment or vehicles to remove the material at the expense of the hauler or generator.

5.0 Quality Assurance/Quality Control

Before Renewable Resources agrees to accept and/or treat any waste material, it must obtain a sufficient amount of reliable information about the waste material to assure that it is suitable for acceptance at the Site, under the conditions of its operating permit SW-0363.

Quality Assurance and Quality Control (QA/QC) procedures consist of the following:

- Each generator submits a Waste Materials Data Sheet (including a certification of non-hazardous waste) for each type of waste material proposed to be transported to the Site.
- Visual inspection of each load or container of waste material received.
- Sampling and chemical analysis of each load or container of waste that does not appear to be consistent with the descriptive information submitted by the waste generator.
- Random sampling of large volumes of waste received at the facility with appropriate chemical analysis of samples if deemed necessary to verify compatibility with descriptive documentation submitted by the waste generator.

Renewable Resources does not maintain a laboratory at its Site to perform chemical analysis of waste and must rely on private laboratories to provide required testing services. Limited on-facility testing may be available to test for pH, specific conductance, and organic vapor. Any instrument used to generate data will be calibrated to assure accuracy within reasonable limits. Laboratories that perform analysis for waste generators or for Renewable Resources directly will be expected to maintain a full, EPA-approved laboratory facility operating under an NDDH-approved QA/QC program at all times. The labs will also be expected to maintain appropriate NDDH-certification. Renewable Resources may periodically inspect or audit the QA/QC data produced by these laboratories.

All QA/QC testing performed shall be performed in accordance with standardized test methods for the selected waste characterization parameters used. These methods are obtained from the following sources:

- Test Methods for Evaluating Solid Waste, SW-846, EPA, Office of Water and Waste Management, Washington, D.C. 20406, 3rd Edition, 1986.
- Annual Book of ASTM Standards, Parts 15, 19, 31; American Society for Testing Materials, 1916 Race Street, Philadelphia, Pennsylvania 19103.
- Standard Methods for the Examination of Water and Waste Water, 16th Edition, American Public Health Association, 1985.
- Methods for Chemical Analysis of Water and Wastes, EPA-600/4-79-020, EPA, Environmental Monitoring and Support Laboratory, Cincinnati, Ohio 45268,March 1979.
- Title 40 of the Code of Federal Regulations, Parts 260-270.

The Operator or a specifically-authorized designee must approve all wastes for shipment, during the pre-acceptance process and upon the arrival and inspection of the waste material at the Site. The Manager will serve as the fully appointed designee for waste acceptance.

5.1 TRAINING

All facility personnel must receive appropriate (and on-going) training for the proper carrying out of their duties, including the requirements and responsibilities under the terms of the facility's permit and the NDDH rules governing the facility. Personnel training specific to this WAP will be recorded in the facility operating record, and dates and types of training will be kept on file and will be accessible at the facility for review upon request. Training will primarily be handled by Renewable Resources, but others may also be used as appropriate.

New employees will be subject to an on-the-job training program, and will be trained within six months of employment. Training updates are conducted routinely, addressing all procedures and requirements.

6.0 Recordkeeping Procedures

The Site's inspection and recordkeeping program is intended to ensure that waste loads are consistent with permit requirements and are acceptable for treatment at the Site.

6.1 RECORDS

Records of all special and industrial wastes listed in Appendix D will be maintained at the facility office throughout the life of the Site. The file will consist of:

- All inspection and waste screening logs;
- Records of the weight or volume of accepted waste (including all industrial wastes);
- Copies of required reports to NDDH and NDIC (see Plan of Operations)
- Generator Intake Forms;
- Waste Acceptance Forms;
- Waste Evaluation Forms;
- Requests for Chemical Analysis, and their results;
- Any necessary waste testing results done during the year, or on a periodic basis;
- Load Rejection Forms;
- Waste Tracking Forms;
- Waste Screening Forms;
- WAP Plans and Amendments (this plan);
- Waste Manifest (if applicable);
- Waste Profile (if applicable);
- Material Safety Data Sheets (if applicable); and
- Any other pertinent information.

These records are necessary for completing routine reviews for the Site and other permit compliance requirements, as well as documenting the Site history.

7.0 Plan Amendments

Renewable Resources will amend this WAP plan whenever the management practices, designated acceptable or unacceptable wastes, as identified in this plan, change significantly. The amended plan will be submitted to the NDDH and NDIC for review and approval before the changes are implemented.

The plan will be discussed with each update of the Site's solid waste and treating plant permits. Any significant changes in solid waste generation or management in the service area of the Site will also be a potential occasion for plan amendment. For example, if a new generator of industrial waste is established and the new waste is not covered by the existing plan, an amendment plan will be issued which incorporates procedures for dealing with the new waste and notification to both the NDDH and NDIC of the change.

8.0 Annual Report

As part of the yearly Annual Report prepared by Renewable Resources, an annual summary of information required by North Dakota 33-20-04.1-04 will be submitted, as required. The annual report will identify the amount and description of special waste and industrial solid waste received during the year the report covers, where the untreated waste and treated byproducts were stored and in what manner, how the waste was treated, whether the treated material was recycled or disposed, and its ultimate disposition. Any new industrial waste streams received will also be documented to the NDDH, including quantities, the Waste Evaluation Forms, and all testing done to determine the waste's acceptability. The percentage of industrial waste to special waste will also be documented.

In addition, an Annual Operating Report will be prepared to address the requirements of the NDIC permit (pending). This permit will likely require that the Annual Operating Report be filed with the NDIC by June 1 of each year, and include:

- Site schematic of the treating plant site, drawn to scale, detailing all facilities and equipment including the size and location of all tanks, the height and location of all dikes, and the location of all roads and flowlines;
- Present inventory of fluids and solids on location;
- Future plans for the next year; and,
- Any further information requested by the director.

Tables

Table 1

Exempt E & P Wastes and Non-Exempt Wastes
Renewable Resources, LLC

RCRA-Exempt E & P Wastes (USEPA)
(Acceptable for Treatment)

- Produced water;
- Drilling fluids;
- Drill cuttings;
- Rigwash;
- Drilling fluids and cuttings from offshore operations disposed of onshore;
- Geothermal production fluids;
- Hydrogen sulfide abatement wastes from geothermal energy production;
- Well completion, treatment, and stimulation fluids;
- Basic sediment, water, and other tank bottoms from storage facilities that hold product and exempt waste;
- Accumulated materials such as hydrocarbons, solids, sands, and emulsion from production separators, fluid treating vessels, and production impoundments;
- Pit sludges and contaminated bottoms from storage or disposal of exempt wastes;
- Gas plant dehydration wastes, including glycol-based compounds, glycol filters, and filter media, backwash, and molecular sieves;
- Workover wastes;
- Cooling tower blowdown;
- Gas plant sweetening wastes for sulfur removal, including amines, amine filters, amine filter media, backwash, precipitated amine sludge, iron sponge, and hydrogen sulfide scrubber liquid and sludge;
- Spent filters, filter media, and backwash (assuming the filter itself is not hazardous and the residue in it is from an exempt waste stream);
- Pipe scale, hydrocarbon solids, hydrates, and other deposits removed from piping and equipment prior to transportation;
- Produced sand;
- Packing fluids;
- Hydrocarbon-bearing soil;
- Pigging wastes from gathering lines;
- Wastes from subsurface gas storage and retrieval, except for the non-exempt wastes listed on page 11 of USEPA guidance document;
- Constituents removed from produced water before it is injected or otherwise disposed of;
- Liquid hydrocarbons removed from the production stream but not from oil refining;
- Gases from the production stream, such as hydrogen sulfide and carbon dioxide, and volatilized hydrocarbons;
- Materials ejected from a producing well during blowdown;
- Waste crude oil from primary field operations; and
- Light organics volatilized from exempt wastes in reserve pits, impoundments, or production equipment.

Non-Exempt Wastes (USEPA)
(Not Acceptable for Treatment)

- Unused fracturing fluids or acids;
- Gas plant cooling tower cleaning wastes ;
- Painting wastes;
- Waste solvents;
- Oil and gas service company wastes such as empty drums, drum rinsate, sandblast media, painting wastes, spent solvents, spilled chemicals, and waste acids;
- Vacuum truck and drum rinsate from trucks and drums transporting or containing non-exempt waste;
- Refinery wastes;
- Liquid and solid wastes generated by crude oil and tank bottom reclaimers[1];
- Used equipment lubricating oils;
- Waste compressor oil, filters, and blowdown;
- Used hydraulic fluids;
- Waste in transportation pipeline related pits (except with approval by NDDH);
- Caustic or acid cleaners;
- Boiler cleaning wastes;
- Boiler scrubber fluids, sludges, and ash;
- Incinerator ash;
- Laboratory wastes;
- Sanitary wastes ;
- Pesticide wastes;
- Radioactive tracer wastes;
- Drums insulation, and
- Miscellaneous solids.

[1] Although non-E&P wastes generated from crude oil and tank bottom reclamation operations (e.g., waste equipment cleaning solvent) are non-exempt, residuals derived from exempt wastes (e.g., produced water separated from tank bottoms) are exempt.

Table 1A
Breakdown of Production vs. Exploration Acceptable Waste
Renewable Resource, LLC

Waste	Production*	Exploration**
Produced Water	X	
Drilling Fluids		X
Drill Cuttings		X
Rigwash		X
Drilling Fluids and Cuttings from Offshore Operations Disposed of Onshore		X
Geothermal Production Fluids	X	
Hydrogen Sulfide Abatement Wastes from Geothermal Energy Production	X	
Well Completion, Treatment, and Stimulation Fluids		X
Basic Sediment, Water, and Other Tank Bottoms from Storage Facilities that Hold Product and Exempt Waste	X	
Accumulated Materials such as Hydrocarbons, Solids, Sands, and Emulsion from Production Separators, Fluid Treating Vessels, and Production Impoundments	X	
Pit Sludges and Contaminated Bottoms from Storage or Disposal of Exempt Wastes	X	
Gas Plant Dehydration Wastes, Including Glycol-Based Compounds, Glycol Filters, and Filter Media, Backwash, and Molecular Sieves	X	
Workover Wastes		X
Cooling Tower Blowdown	X	
Gas Plant Sweetening Wastes for Sulfur Removal, Including Amines, Amine Filters, Amine Filter Media, Backwash, Precipitated Amine Sludge, Iron Sponge, and Hydrogen Sulfide Scrubber Liquid and Sludge	X	
Spent Filters, Filter Media, and Backwash (Assuming the Filter Itself is not Hazardous and the Residue in it is from an Exempt Waste Stream)	X	
Pipe Scale, Hydrocarbon Solids, Hydrates, and Other Deposits Removed from Piping and Equipment Prior to Transportation	X	
Produced Sand	X	
Packing Fluids		X
Hydrocarbon-Bearing Soil	X	X
Pigging Wastes from Gathering Lines	X	
Wastes from Subsurface Gas Storage and Retrieval, Except for the Non-Exempt Wastes	X	
Constituents Removed from Produced Water Before it is Injected or Otherwise Disposed of	X	
Liquid Hydrocarbons Removed from the Production Stream but not from Oil Refining	X	
Gases from the Production Stream, Such as Hydrogen Sulfide and Carbon Dioxide, and Volatilized Hydrocarbons	X	
Materials Ejected from a Producing Well During Blowdown	X	
Waste Crude Oil from Primary Field Operations		X
Light Organics Volatilized from Exempt Wastes in Reserve Pits, Impoundments, or Production Equipment	X	

* Reference Table 2 For Testing Requirements
** No Laboratory Testing is Required

Analytical Testing Requirements for Production or Industrial Wastes Renewable Resources, LLC

- Production Waste Subset of Special Waste:
  - Total Petroleum Hydrocarbons as Diesel Range Organics and Gasoline Range Organics (TPH as DRO; and TPH as GRO)
  - Benzene, Toluene, Ethyl Benzene, and Xylene (BTEX)
  - Ignitability
  - RCRA Metals: (Using Toxicity Characteristic Leaching Procedure Testing - TCLP)
    - Arsenic (As)
    - Barium (Ba)
    - Cadmium (Cd)
    - Chromium (Cr)
    - Lead (Pb)
    - Selenium (Se)
    - Silver (Ag)
    - Mercury (Hg)
  - TENORM Radioactivity Levels: Ra 226 + Ra 228
  - Other Contaminants Likely (Based on Facility or Generator Knowledge)
  - Saltwater – Related Waste Include the Following (i.e., Contaminated Soils from a Pipeline or Saltwater Injection Well Site)
    - Electrical Conductivity
    - Chlorides (Cl)
    - Sodium (Na)
    - pH

- Spills or Waste from Industrial Clients:
  - Oil and Gas Transportation-Related Wastes (i.e., Contaminated Soils from a Petroleum or Natural Gas Spill)
    - TPH as DRO (if Crude Oil or Diesel Spill or Natural Gas)
    - TPH as GRO (if Gasoline Spill)
    - BTEX
    - Ignitability
    - Lead (by TCLP Methods)
  - Other Contaminants Likely (Based on Facility or Generator Knowledge)
  - Saltwater – Related Waste Include the Following (i.e., Contaminated Soils from a Pipeline or Saltwater Injection Well Site)
    - Electrical Conductivity
    - Chlorides (Cl)
    - Sodium (Na)
    - pH

Waste Sampling Guidance (Numbers of Samples)
Renewable Resources, LLC

Minimum number of soil samples:

Volume of Contaminated Soil (cubic yards)	Number of Samples
<10	0
10-50	1
50-500	2
500-1000	3
1000-2000	4
2000-4000	5
Each additional 2000	One additional sample

Soil samples are necessary to evaluate and document contamination levels in the soil to be treated. Renewable resources will obtain a composite soil sample, or direct the generator, by digging a minimum of one foot into the pile at least three places within the pile before collecting subsamples. To avoid cross-contamination, subsamples should be taken using clean disposable gloves (and other clean sampling utensils) at each sample location (refer to NDDH "Procedures for the Collection of Soil Samples at Underground Storage Tank (UST) Sites"). Mix equal portions of each subsample to obtain a composite sample. Completely fill each sample vial so that no headspace exists, wipe soil from the vial threads, and seal the vial using a cap with a Teflon septum. Label the vial, wrap it in aluminum foil, and place in a covered cooler with ice for transport to a laboratory for analysis.

Appendix A

Renewable Resources, LLC Permit SW-0363

PERMIT FOR A SOLID WASTE MANAGEMENT FACILITY

DAKOTA DEPARTMENT OF HEALTH — DIVISION OF WASTE MANAGEMENT
TELEPHONE: 701-328-5166 • REV. 02/12

Pursuant to Chapter 23-29 of the North Dakota Century Code (NDCC), (Solid Waste Management and Land Protection Act), and Article 33-20 of the North Dakota Administrative Code (NDAC), (Solid Waste Management Rules), and in reliance on statements and representations heretofore made by the owner or owner's representative designated below, a Permit to Operate is hereby issued authorizing such owner to operate a solid waste management facility at the location designated below.

A. Owner/Operator:

1. **Name:** Renewable Resources LLC

2. **Mailing Address:** PO Box 657, Killdeer, ND 58640

3. **Location Address:** 10658 1st Street Northwest, Killdeer, ND 58640

B. Permit Number: 0363

C. Solid Waste Management Units:

1. Transfer Station
2. Thermal Treatment Unit and Related Structures

D. Location Information:

1. **General:** N1/2 of the NE1/4 of the NW1/4 of **Sec** 32, **TWP** 146N, **R** 95W of Dunn County

2. **Permit Area:** One and one-half (1.5) acres and as described in referenced documents and facility files

The owner/operator of the facility is subject to the Solid Waste Management and Land Protection Act and Solid Waste Management Rules and orders now or hereafter effected by the North Dakota Department of Health (hereinafter the Department), and to any and all conditions listed below.

E. Conditions:

E.1. The owner/operator of the facility is subject to the Solid Waste Management and Land Protection Act (Chapter 23-29 NDCC), the Solid Waste Management Rules (Article 33-20 NDAC), all other North Dakota and federal laws, rules or regulations and orders now or hereafter effected by the North Dakota Department of Health (hereinafter the Department), and to any and all conditions of this permit.

E.2. Compliance with terms of this permit does not constitute a defense to any order issued or any action brought under NDCC 23-29, NDAC 33-20, NDCC 23-20.3, NDAC 33-

24, Sections 3013, 7003, or 3008(a) of RCRA, Sections 106(a), 104 or 107 of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (42 U.S.C. 9601 et. seq.) or any other law providing for protection of public health or the environment.

E.3. Issuance of this permit does not convey property rights of any sort or any exclusive privilege, nor does it authorize any injury to persons or property, any invasion of other private rights or any infringement of state or local law or regulations.

E.4. It shall not be a defense for the Permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this permit.

E.5. This permit is based on the premise that the information submitted by the owner/operator is accurate and that the facility will be or has been constructed and will be operated as specified in the application and all related documents. Any inaccuracies or misrepresentations found in the application may be grounds for the termination or modification of this permit. The Permittee must inform the Department of any deviation from, or changes in, the information in the application which would affect the Permittee's ability to comply with the applicable rules or permit conditions.

E.6. The Permittee shall at all times properly operate and maintain the facility and systems of disposal, storage and control (and related appurtenances) which are installed or used by the Permittee to achieve compliance with the conditions of this permit. Proper operation and maintenance includes effective performance, adequate funding, adequate operator staffing and training, and adequate laboratory and process controls, including appropriate quality assurance/quality control procedures. This provision requires the operation of backup or auxiliary facilities or similar systems only when necessary to achieve compliance with the conditions of this permit.

E.7. The Permittee shall give notice to the Department of any planned physical alterations or additions to permitted waste management units. Any physical change in or change in the method of operation of a treatment or disposal operation shall be considered to be construction, installation or establishment of a new operation. No construction, installation or establishment of a new operation shall be commenced unless the owner/operator thereof shall file an application for, and receive, a permit to construct and operate from the Department.

a. The Permittee shall give advance notice to the Department of any planned changes in the permitted facility or activity which may result in noncompliance with permit requirements.

b. Any significant change in or use of contract operators in the routine operation of the facility shall be deemed a significant change in the operation and shall be subject to Departmental review of the operator's qualifications, background,

experience, equipment and other pertinent issues. Such change may necessitate modification of the permit and the facility's plan of operation.

c. Whenever the Permittee becomes aware that the Permittee failed to submit any relevant facts in the permit application or submitted incorrect information in the permit application or in any report to the Department, the Permittee shall promptly submit such facts or information.

E.8. The owner/operator shall construct, operate, maintain and close the waste management units and the facility according to the criteria of law and rule, conditions of this permit and other reasonable precautions to prevent or minimize, if applicable, any environmental impacts, including, but not limited to, fugitive dust emissions, objectionable odors, air toxics and gas emissions, spills, litter and contamination of surface water and groundwater.

E.9. The Permittee shall furnish to the Department, within a reasonable time, any relevant information which the Department may request to determine whether cause exists for modifying, reissuing or terminating this permit, or to determine compliance with this permit. The Permittee shall also furnish to the Department, upon request, copies of records required to be kept by this permit.

E.10. This permit may be modified, revoked and reissued, or terminated for cause as specified in Section 33-20-02.1-06 NDAC. The filing of a request for permit modification, revocation and reissuance, termination, or the notification of planned changes or anticipated noncompliance on the part of the Permittee does not stay the applicability or enforceability of any permit condition.

This permit may be renewed as specified in Section 33-20-02.1-07 NDAC. Review of any application for a permit renewal shall consider improvements in the state of control and measurement technology, compliance with state rules and permit, as well as changes in applicable regulations.

E.11. This permit addresses only the environmental aspects and operational procedures of the facility. It does not supersede local zoning authority or any other requirements of any political subdivision of the state. The Permittee must obtain any and all local zoning, conditional use permits, or meet any other county, township or municipal requirements prior to commencing construction and/or operation.

E.12. All reasonable precautions shall be taken to prevent and/or minimize fugitive dust emissions from the construction and operation of the facility.

E.13. The discharge of any objectionable odorous air contaminant shall not exceed two (2) concentration units outside of the property boundary.

E.14. The Permittee or his representatives shall construct and operate this facility in the manner outlined in the permit application, unless modifications are specified through permit conditions or through Departmental directive.

E.15. The transfer station and the waste handling areas shall be maintained in a clean and nuisance-free condition at all times. The handling of wastes shall be strictly controlled to eliminate odors, harboring of insects and rodents, scattering of materials by the wind or interference with the operation of the facility. Waste accumulations and placement must be restricted to areas and containers identified in the application. Placement of waste outside of any building, container or waste transportation vehicle is prohibited. No solid waste or residual materials may be placed, spilled or dispersed on the ground. Any spillage or release shall be immediately returned to a waste receptacle or container and the spill area shall be promptly cleaned and decontaminated. A record of any spill or release incidents and cleanup shall be kept in the facility records.

E.16. Any entity that controls the permit holder (Permittee) agrees to accept responsibility for any remedial measures, closure and postclosure care or penalties incurred by the permit holder (Permittee).

F. Specific Conditions:

F.1. Metal items, including, but not limited to, major appliances, metal furniture, scrap metal, etc., may not be collected or transported for disposal to any solid waste disposal unit or facility unless such unit or facility has provision for intermediate storage and recycling of these materials and all such materials are appropriately segregated for recycling.

F.2. Unless approved in a facility waste acceptance plan in this permit, or through Departmental correspondence, the facility shall not be used for the disposal of household garbage and putrescible waste; animal carcasses; waste grain, seed and elevator screenings; sludges, or liquids. This facility shall not be used for the disposal of unrinsed pesticide containers; lead-acid batteries; used oil; scrap metal; metal appliances; PCB waste/oils; hazardous wastes [i.e., ignitables (solvents, paints and fuels), corrosives (acids and alkalies), reactives, toxicity characteristic wastes, and listed wastes]; electronic waste (televisions, computers, monitors, printers, copiers, materials containing circuit boards, ballasts, capacitors, etc.); mercury-containing devices (fluorescent lighting, switches, thermometers, thermostats, etc.); hazardous materials; manure; septic tank pumpings, infectious wastes, or regulated radioactive waste.

F.3. This facility will be authorized for treatment and/or disposal of those special wastes identified in the permit application, Departmentally-approved facility waste acceptance plan, elsewhere in this permit, or through Departmental correspondence. This facility is further limited to EPA-exempt natural gas and crude oil exploration and production wastes; petroleum-contaminated wastes associated with leaking underground storage tanks; petroleum-contaminated wastes associated with releases from aboveground storage tanks; natural gas and/or crude oil-impacted wastes associated with pipeline

transportation releases; floor drain and sump sludges associated with car wash facilities and automotive repair facilities; inert waste; and similar wastes as described in the permit application information on file with the Department. This facility may accept other types of special waste upon the Department's approval. The amounts of waste authorized for management in this facility are as follows: a total of 438,000 tons of special and industrial waste per year resulting from releases associated with underground storage tanks, aboveground storage tanks, natural gas and/or crude oil-impacted wastes associated with pipeline transportation releases, sump sludges associated with car wash facilities. This facility is not approved for municipal solid waste, medical waste or any other material not identified in an approved waste acceptance plan and this permit.

F.4. All personnel involved in solid waste handling and in the facility operation or monitoring must be provided a copy of this permit and shall be instructed in specific procedures to ensure compliance with the permit, the facility plans and the state rules as necessary to prevent accidents and environmental impacts. Documentation of training such as names, dates, description of instruction methods and copies of certificates awarded must be placed in the facility's operating record. In addition, a copy of this permit, pertinent rules, guidelines and forms and waste acceptance procedures shall be posted at a prominent location within the facility. The owner/operator shall coordinate waste acceptance procedures with any disposal facility in North Dakota which receives waste from this transfer facility. Waste delivered to any solid waste facility in North Dakota must be in accordance with the receiving facilities waste acceptance procedures.

Should questions or issues arise, the owner or operator shall contact the North Dakota Department of Health at 701-328-5166.

F.4. Within ninety (90) days of the permit issuance date, the owner/operator shall develop checklists to implement the self-inspection procedures for all solid waste management units and activities at the facility regulated by this permit. Development, use and implementation of these checklists are subject to Departmental review and, upon approval, shall be implemented.

The owner/operator shall complete and document routine inspections of the facility and its operations as detailed in the permit application. In addition to routine daily inspections during operations, the owner/operator shall complete and document monthly inspections of the facility and its operations. These reports shall be compiled and submitted within the annual report for the facility. Upon request and acceptable compliance, the Department may allow a reduction of the frequency of inspection.

F.5. This permit is issued to Renewable Resources LLC as the owner/operator only. Any significant change or use of contractor operators in the routine operation of the facility shall be deemed a significant change in the operation and shall be subject to Departmental review of the operator's qualifications, background, experience, equipment, and other pertinent issues. Such change may necessitate modification of the permit and the facility's plan of operation.

F.6. Prior to facility operation, as-built drawings of the building(s) and surrounding area shall be submitted to the Department for review and approval.

F.7. Prior to facility operation, the Permittee shall submit and receive Departmental approval for plans regarding the management and disposal of any liquid from inside the building that is collected in the pit. Liquid from inside the building and the pit may not be allowed to drain out of the building, to any subsurface tank or drain system, or off-site without formal approval.

G. Thermal Waste Treatment Unit, Transfer Station and Related Structures

G.1. Except as modified by conditions of this permit, this facility and related waste management units and units and structures shall be designed, constructed, operated and closed in accordance with previous correspondence and documents enumerated below, which are hereby incorporated by reference in this permit:

a. "Solid Waste Facility Permit for Renewable Resources", dated July 5, 2012 and received by the North Dakota Department of Health - Division of Waste Management on July 6, 2012.

b. "Thermal Treatment" Unit as presented to the North Dakota Industrial Commission and the North Dakota Department of Health – Division of Waste Management), March 8, 2012.

c. "Air Pollution Control Permit to Construct" PTC 12002 issued by the North Dakota Department of Health, Air Quality Division, to Renewable Resources LLC, including the modifications specified on May 7, 2012. Should Permit PTC 12002 be revised, modified or renewed, the new or amended permit shall be considered in effect.

Future submittals approved by the Department may supersede or supplement items listed above.

G.2. Prior to the onset of facility installation and operations, Renewable Resources, LLC shall submit and obtain approval from the Department for an amended facility plan and plan of operation including facility layout and drainage details specifically addressing the Thermal Treatment Unit, any surrounding or related buildings, storage areas or related structures

G.3. The facility is authorized for management of Industrial and Special Waste only.

G.4. The Thermal Treatment Unit and the waste handling areas shall be maintained in a clean and nuisance-free condition at all times. The handling of wastes shall be strictly controlled to eliminate spillage, hazardous air pollutants, surface water or groundwater pollution, scattering of materials by the wind or interference with the operation of the facility. The Permittee shall report any spills, releases or noncompliance which may

endanger human health or the environment. Any information shall be provided verbally within twenty-four (24) hours from the time the Permittee becomes aware of the circumstances.

G.5. Unless approved elsewhere in this permit, the facility shall not be used for the management or transfer for disposal to a landfill of the following waste types: liquids; unrinsed pesticide containers; lead-acid batteries; used oil; PCB waste/oils; hazardous wastes including ignitables (solvents, paints and fuels), corrosives (acids and alkalies), reactives, toxicity characteristic wastes and listed wastes; electronic waste such as televisions, computers, monitors, printers, copiers, materials containing circuit boards, ballasts, capacitors, etc. (other than household quantities); mercury-containing devices such as fluorescent lighting, switches, thermometers, thermostats, etc.; hazardous materials; sludges; manure; septic tank pumpings; infectious waste or large quantities of soluble wastes (fly ash, salt, fertilizer, etc.). If approved by the Department, household quantities of these materials may be segregated for reuse, recycling or off-site management via a hazardous waste program.

G.6. Beneficial use or disposal of treatment byproducts or waste, other than oil or crude oil, is subject to Departmental approval and/or the approval of the North Dakota Division of Oil and Gas and any pertinent conditions or requirements.

G.7. All solid waste materials or residuals must be managed in accordance with NDAC Article 33-20 (North Dakota Solid Waste Rules) and NDCC Chapter 61-28 (Control, Prevention and Abatement of Pollution of Surface Waters). No solid waste or residual materials may be placed on or in the ground without the owner/operator of the site addressing pertinent requirements and/or permits. All companies, including subcontractors hauling waste or residuals in or out of the facility must have and abide by a waste transporter permit issued by the Department.

G.8. To help demonstrate the effectiveness of the treatment process, the owner/operator shall submit a plan for Departmental review and approval to conduct representative analysis of the wastes being accepted for treatment as well as the resultant products, residuals, wastes and related materials. Upon Departmental approval, the owner/operator shall complete the analysis for Departmental review. The report shall also provide information on the amount and type of materials anticipated to be recovered as well as any amounts disposed or beneficially used. After the initial report, a summary of the facility operation shall be included in the facility annual report.

In consideration of information provided regarding the facility and its operation and in consideration of the conditions in E., F., and G., above, the North Dakota Department of Health hereby issues a permit to Renewable Resources LLC.

This permit is effective as of September 10, 2012 and shall remain in effect until September 10, 2015, unless modified, superseded or revoked under Section 33-20-02.1-06 NDAC or continued in accordance with Section 33-20-02.1-07. NDAC.

Scott Radig

Scott A. Radig, P.E., Director
Division of Waste Management

9-10-2012
Date

Appendix B

"Exemption of Oil and Gas Exploration and Production Wastes from Federal Hazardous Waste Regulations," USEPA

United States
Environmental Protection
Agency

Exemption of Oil and Gas Exploration and Production Wastes from Federal Hazardous Waste Regulations

Printed on paper that contains at least 30 percent postconsumer fiber.

Cover photo: Oil Production, Bakersfield, California

Introduction

This publication provides an understanding of the exemption of certain oil and gas exploration and production (E&P) wastes from regulation as hazardous wastes under Subtitle C of the Resource Conservation and Recovery Act (RCRA).

The information contained in this booklet is intended to furnish the reader with:

- A basic background on the E&P exemption.
- Basic rules for determining the exempt or non-exempt status of wastes.
- Examples of exempt and non-exempt wastes.
- status of E&P waste mixtures.
- Clarifications of several misunderstandings about the exemption.

- Answers to frequently asked questions.
- Recommendations for sensible waste management.
- Additional sources of information.

The American Petroleum Institute (API) estimated that 149 million barrels of drilling wastes, 17.9 billion barrels of produced water and 20.6 million barrels of other associated wastes were generated in 1995 from exploration and production (E&P) operations.

Once generated, managing these wastes in a manner that protects human health and the environment is essential for limiting operators' legal and financial liabilities and also makes good business sense. Operators must also determine if the waste is subject to hazardous waste regulations. At times this determination is misunderstood and can lead to improper waste management decisions.

Drilling waste volumes are directly related to the level of drilling activity. API data show that the total footage drilled for all oil and gas wells dropped from 315.4 million feet in 1985 to 118 million feet in 1995, a decrease of 60 percent. A corresponding drop in the volume of drilling waste, from 361 million barrels in 1985, to 149 million barrels in 1995, was estimated.

On the other hand, as hydrocarbons from producing wells deplete, produced water volumes typically increase. API has estimated that the average volume of produced water increased from 6 barrels of water per barrel of oil in 1985, to 7.5 barrels of water per barrel of oil in 1995.

Prudent waste management decisions, even for nonhazardous wastes, should be based on the inherent nature of the waste. Not all waste management options are appropriate for every waste. Operators also should be familiar with state and federal regulations governing the management of hazardous and nonhazardous wastes.

The preferred option for preventing pollution is to avoid generating wastes whenever possible (source reduction). Examples include process modifications to reduce waste volumes and materials substitution to reduce toxicity.

Understanding the procedures for determining the exempt or nonexempt status of a waste is a valuable tool, especially for operators who choose to develop voluntary waste management plans. When these procedures are used in conjunction with a knowledge of the nature of the waste, the operator will be better prepared to develop site-specific waste management plans and to manage E&P wastes in a manner that protects human health and the environment.

Scope of the Exemption

In December 1978, EPA proposed hazardous waste management standards that included reduced requirements for several types of large volume wastes. Generally, EPA believed these large volume "special wastes" are lower in toxicity than other wastes being regulated as hazardous waste under RCRA. Subsequently, Congress exempted these wastes from the RCRA Subtitle C hazardous waste regulations pending a study and regulatory determination by EPA. In 1988, EPA issued a regulatory determination stating that control of E&P wastes under RCRA Subtitle C regulations is not warranted. Hence, E&P wastes have remained exempt from Subtitle C regulations. The RCRA Subtitle C exemption, however, did not preclude these wastes from control under state regulations, under the less stringent RCRA Subtitle D solid waste regulations, or under other federal regulations. In addition, although they are relieved from regulation as hazardous wastes, the exemption does not mean these wastes could not present a hazard to human health and the environment if improperly managed.

Among the wastes covered by the 1978 proposal were "gas and oil drilling muds and oil production brines." The oil and gas exemption was expanded in the 1980 legislative amendments to RCRA to include "drilling fluids, produced water, and other wastes associated with the exploration, development, or production of crude oil or natural gas. . . ." (Geothermal energy wastes were also exempted but are not addressed by this publication.)

According to the legislative history, the term "other wastes associated" specifically includes waste materials intrinsically derived from primary field operations associated with the exploration, development, or production of crude oil and natural gas. The phrase "intrinsically derived from the primary field operations" is intended to distinguish exploration, development, and production operations from transportation and manufacturing operations.

With respect to crude oil, primary field operations include activities occurring at or near the wellhead and before the point where the oil is transferred from an individual field facility or a centrally located facility to a carrier for transport to a refinery or a refiner.

With respect to natural gas, primary field operations are those activities occurring at or near the wellhead or at the gas plant, but before the point where the gas is transferred from an individual field facility, a centrally located facility, or a gas plant to a carrier for transport to market. Examples of carriers include trucks, interstate pipelines, and some intrastate pipelines.

Primary field operations include exploration, development, and the primary, secondary, and tertiary production of oil or gas. Crude oil processing, such as water separation, de-emulsifying, degassing, and storage at tank batteries associated with a specific well or wells, are examples of primary field operations. Furthermore, because natural gas often requires processing to remove water and other impurities prior to entering the sales line, gas plants are considered to be part of production operations regardless of their location with respect to the wellhead.

In general, the exempt status of an E&P waste depends on how the material was used or generated as waste, not necessarily whether the material is hazardous or toxic. For example, some exempt E&P wastes might be harmful to human health and the environment, and many non-exempt wastes might not be as harmful. The following simple rule of thumb can be used to determine if an E&P waste is exempt or non-exempt from RCRA Subtitle C regulations:

- Has the waste come from down-hole, i.e., was it brought to the surface during oil and gas E&P operations?
- Has the waste otherwise been generated by contact with the oil and gas production stream during the removal of produced water or other contaminants from the product?

If the answer to either question is yes, then the waste is likely considered exempt from RCRA Subtitle C regulations. It is important to remember that *all* E&P wastes require proper management to ensure protection of human health and the environment.

Exempt and Non-Exempt Wastes

In its 1988 regulatory determination, EPA published the following lists of wastes that were determined to be either exempt or non-exempt. These lists are provided as examples of wastes regarded as exempt and non-exempt and should not be considered to be comprehensive. The exempt waste list applies only to those wastes generated by E&P operations. Similar wastes generated by activities other than E&P operations are not covered by the exemption.

Exempt E&P Wastes

- Produced water
- Drilling fluids
- Drill cuttings
- Rigwash
- Drilling fluids and cuttings from offshore operations disposed of onshore
- Geothermal production fluids
- Hydrogen sulfide abatement wastes from geothermal energy production
- Well completion, treatment, and stimulation fluids
- Basic sediment, water, and other tank bottoms from storage facilities that hold product and exempt waste
- Accumulated materials such as hydrocarbons, solids, sands, and emulsion from production separators, fluid treating vessels, and production impoundments
- Pit sludges and contaminated bottoms from storage or disposal of exempt wastes
- Gas plant dehydration wastes, including glycol-based compounds, glycol filters, and filter media, backwash, and molecular sieves
- Workover wastes
- Cooling tower blowdown
- Gas plant sweetening wastes for sulfur removal, including amines, amine filters, amine filter media, backwash, precipitated amine sludge, iron sponge, and hydrogen sulfide scrubber liquid and sludge
- Spent filters, filter media, and backwash (assuming the filter itself is not hazardous and the residue in it is from an exempt waste stream)
- Pipe scale, hydrocarbon solids, hydrates, and other deposits removed from piping and equipment prior to transportation
- Produced sand
- Packing fluids
- Hydrocarbon-bearing soil
- Pigging wastes from gathering lines
- Wastes from subsurface gas storage and retrieval, except for the non-exempt wastes listed on page 11
- Constituents removed from produced water before it is injected or otherwise disposed of
- Liquid hydrocarbons removed from the production stream but not from oil refining

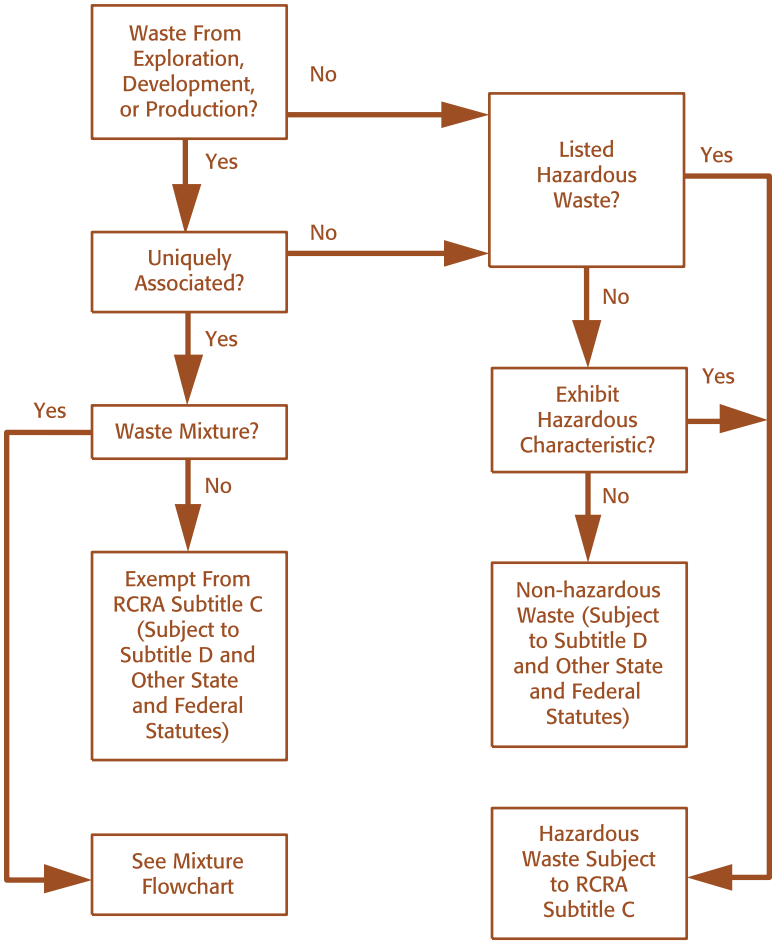
- Gases from the production stream, such as hydrogen sulfide and carbon dioxide, and volatilized hydrocarbons
- Materials ejected from a producing well during blowdown
- Waste crude oil from primary field operations
- Light organics volatilized from exempt wastes in reserve pits, impoundments, or production equipment

Non-Exempt Wastes

- Unused fracturing fluids or acids
- Gas plant cooling tower cleaning wastes
- Painting wastes
- Waste solvents
- Oil and gas service company wastes such as empty drums, drum rinsate, sandblast media, painting wastes, spent solvents, spilled chemicals, and waste acids
- Vacuum truck and drum rinsate from trucks and drums transporting or containing non-exempt waste
- Refinery wastes
- Liquid and solid wastes generated by crude oil and tank bottom reclaimers [1]
- Used equipment lubricating oils
- Waste compressor oil, filters, and blowdown
- Used hydraulic fluids
- Waste in transportation pipeline related pits
- Caustic or acid cleaners
- Boiler cleaning wastes
- Boiler refractory bricks
- Boiler scrubber fluids, sludges, and ash
- Incinerator ash
- Laboratory wastes
- Sanitary wastes
- Pesticide wastes
- Radioactive tracer wastes
- Drums, insulation, and miscellaneous solids

[1] Although non-E&P wastes generated from crude oil and tank bottom reclamation operations (e.g., waste equipment cleaning solvent) are non-exempt, residuals derived from exempt wastes (e.g., produced water separated from tank bottoms) are exempt. For a further discussion, see the Federal Register notice, Clarification of the Regulatory Determination for Waste from the Exploration, Development, and Production of Crude Oil, Natural Gas and Geothermal Energy, March 22, 1993, Federal Register Volume 58, Pages 15284 to 15287.

Exempt/Non-Exempt Wastes



Mixing Wastes

Mixing wastes, particularly exempt and non-exempt wastes, creates additional considerations. Determining whether a mixture is an exempt or non-exempt waste requires an understanding of the nature of the wastes prior to mixing and, in some instances, might require a chemical analysis of the mixture. Whenever possible, avoid mixing non-exempt wastes with exempt wastes. If the non-exempt waste is a listed or characteristic hazardous waste, the resulting mixture might become a non-exempt waste and require management under RCRA Subtitle C regulation. Furthermore, mixing a characteristic hazardous waste with a non-hazardous or exempt waste for the purpose of rendering the hazardous waste non-hazardous or less hazardous might be considered a treatment process subject to appropriate RCRA Subtitle C hazardous waste regulation and permitting requirements.

NOTE: In a policy letter dated September 25, 1997, EPA clarified that a mixture is exempt if it contains exempt oil and gas exploration and production (E&P) waste mixed with non-hazardous, non-exempt waste. Mixing exempt E&P waste with non-exempt characteristic hazardous waste, however, for the purpose of rendering the mixture non-hazardous or less hazardous, could be considered hazardous waste treatment or impermissible dilution.

Below are some basic guidelines for determining if a mixture is an exempt or non-exempt waste under the present mixture rule.

- **A mixture of an exempt waste with another exempt waste remains exempt.**

  Example: A mixture of stimulation fluid that returns from a well with produced water results in an exempt waste.

- **Mixing a non-hazardous waste (exempt or non-exempt) with an exempt waste results in a mixture that is also exempt.**

  Example: If non-hazardous wash water from rinsing road dirt off equipment or vehicles is mixed with the contents of a reserve pit containing only exempt drilling waste, the wastes in the pit remain exempt regardless of the characteristics of the waste mixture in the pit.

- **If, after mixing a non-exempt characteristic hazardous waste with an exempt waste, the resulting mixture exhibits any of the same hazardous characteristics as the hazardous waste (ignitability, corrosivity, reactivity, or toxicity), the mixture is a non-exempt hazardous waste.**

  Example: If, after mixing non-exempt caustic soda (NaOH) that exhibits the hazardous characteristic of corrosivity in a pit containing exempt waste, the mixture also exhibits the hazardous characteristic of corrosivity as determined from pH or steel corrosion tests, then the entire mixture becomes a non-exempt hazardous waste.

  Example: If, after mixing a non-exempt solvent containing benzene with an exempt waste also containing benzene,

the mixture exhibits the hazardous characteristic for benzene, then the entire mixture becomes a non-exempt hazardous waste.

- **If, after mixing a non-exempt characteristic hazardous waste with an exempt waste, the resulting mixture does not exhibit any of the same characteristics as the hazardous waste, the mixture is exempt. Even if the mixture exhibits some other characteristic of a hazardous waste, it is still exempt.**

  Example: If, after mixing non-exempt hydrochloric acid (HCl) that only exhibits the corrosive characteristic with an exempt waste, the mixture does not exhibit the hazardous characteristic of corrosivity but does exhibit some other hazardous characteristic such as toxicity, then the mixture is exempt.

  Example: If, after mixing a non-exempt waste exhibiting the hazardous characteristic for lead with an exempt waste exhibiting the characteristic for benzene, the mixture exhibits the characteristic for benzene but not for lead, then the mixture is exempt.

- **Generally, if a listed hazardous waste[2] is mixed with an exempt waste, regardless of the proportions, the mixture is a non-exempt hazardous waste.**

  Example: If any amount of leaded tank bottoms from the petroleum refining industry (listed as waste code K052) is mixed with an exempt tank bottom waste, the mixture is considered a hazardous waste and is therefore non-exempt.

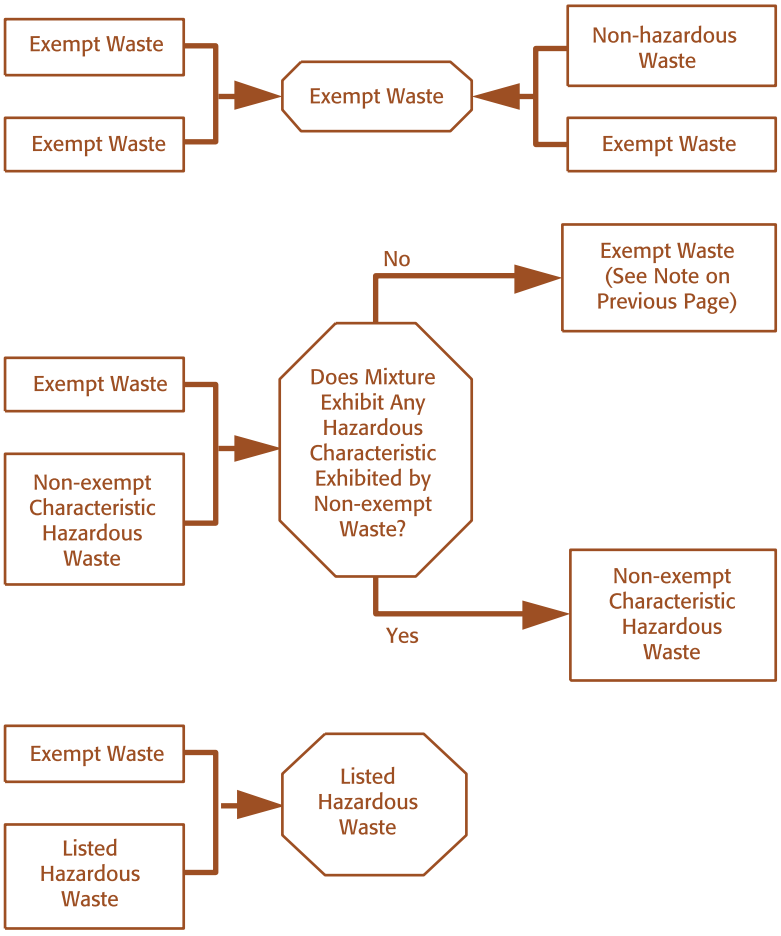
[2] Listed hazardous wastes are those wastes listed as hazardous in the Code of Federal Regulations under Subpart D of 40 CFR Part 261.

It is also important to emphasize that a mixture of an exempt waste with a listed hazardous waste generally becomes a non-exempt hazardous waste regardless of the relative volumes or concentrations of the wastes. However, if the listed hazardous waste was listed solely for one or more of the characteristics of ignitability, corrosivity, or reactivity, then a mixture of this waste with an exempt waste would only become non-exempt if the mixture exhibits the characteristic for which the hazardous waste was listed (i.e., if the mixture is ignitable, corrosive, or reactive).

Similarly, if a mixture of an exempt waste with a non-exempt characteristic hazardous waste exhibits any of the same hazardous waste characteristics as the hazardous waste, or if it exhibits a characteristic that would not have been exhibited by the exempt waste alone, the mixture becomes a non-exempt hazardous waste regardless of the relative volumes or concentrations of the wastes. In other words, for any of these scenarios, the wastes could become non-exempt even if only one barrel of hazardous waste were mixed with 10,000 barrels of exempt waste.

NOTE: The act of mixing a hazardous waste with an exempt waste may be subject to RCRA regulations affecting hazardous waste treatment, including the need for a permit (unless the unit or process is otherwise exempt). Moreover, the waste may still be subject to the 40 CFR 268 Land Disposal Restrictions (LDR) regulations (as applicable), including the prohibition of dilution as a substitute for adequate treatment.

Possible Waste Mixtures and Their Exempt and Non-Exempt Status



Common Misunderstandings

An incomplete understanding of the hazardous waste regulations can result in misinterpretations of the regulatory status of various wastes. The following are common misunderstandings that arise with the RCRA Subtitle C exemption and hazardous waste determinations.

Misunderstanding: All wastes located at E&P sites are exempt.

Fact: All wastes located at E&P sites are not necessarily exempt. To be considered an exempt waste, the waste must have been generated from a material or process uniquely associated with the exploration, development, and production of crude oil and natural gas. For example, a solvent used to clean surface equipment or machinery is not exempt because it is not uniquely associated with exploration, development, or production operations. Conversely, if the same solvent were used in a well, it would be exempt because it was generated through a procedure that is uniquely associated with production operations.

◆ ◆ ◆

Misunderstanding: All service company wastes are exempt.

Fact: Not all service company wastes are exempt. As with all oilfield wastes, only those wastes generated from a material or process uniquely associated with the exploration and pro-

duction of oil and gas are considered exempt. The previous example of solvents used for cleaning equipment and machinery would also apply in this case—the solvent is not an exempt waste.

◆ ◆ ◆

Misunderstanding: Unused products are exempt.

Fact: Unused products, if disposed of, are not exempt, regardless of their intended use, because they have not been used and therefore are not uniquely associated with the exploration or production of oil and gas. When unused products become waste (e.g., they are disposed of), they are subject to RCRA Subtitle C hazardous waste regulations if they are listed or exhibit a hazardous characteristic.

◆ ◆ ◆

Misunderstanding: All exempt wastes are harmless to human health and the environment.

Fact: Certain exempt wastes, while excluded from RCRA Subtitle C hazardous wastes control, might still be harmful to human health and the environment if not properly managed. The exemption relieves wastes that are uniquely associated with the exploration and production of oil and gas from regulation as hazardous wastes under RCRA Subtitle C but does not indicate the hazard potential of the exempt waste. Additionally, some of these wastes might still be subject to state hazardous or non-hazardous waste regulations or other federal regulations (e.g., hazardous materials transportation regulations and National Pollutants Discharge Elimination System (NPDES) or state discharge regulations) unless specifically excluded from regulation under those laws.

Misunderstanding: Any mixture of a non-exempt hazardous waste with an exempt waste becomes an exempt waste.

Fact: Not all mixtures of a non-exempt hazardous waste with an exempt waste become exempt wastes. Generally, a mixture of a listed hazardous waste with an exempt waste becomes a non-exempt hazardous waste.

Also, a mixture of a hazardous waste that exhibits one of the characteristics of a hazardous waste (ignitability, corrosivity, reactivity, or toxicity) with an exempt waste, becomes a non-exempt characteristic hazardous waste if the mixture exhibits one of the same hazardous characteristics as the original hazardous waste. Conversely, if the mixture does not exhibit one of the same hazardous characteristics of the hazardous waste, the mixture becomes a non-hazardous exempt waste. Remember, mixing a non-exempt hazardous waste with an exempt waste for the purpose of rendering the hazardous waste non-hazardous or less hazardous may be considered a treatment process and must be conducted in accordance with applicable RCRA Subtitle C regulations.

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Misunderstanding: A waste exempt from RCRA Subtitle C regulation is also exempt from state and other federal waste management regulations.

Fact: The exemption applies only to the federal requirements of RCRA Subtitle C. A waste that is exempt from RCRA Subtitle C regulation might be subject to more stringent or broader state hazardous and non-hazardous waste regulations and other state and federal program regulations. For example, oil and gas exploration and production wastes are subject to regulation under the Clean Air Act (CAA), Clean Water Act (CWA), Safe Drinking Water Act (SDWA), and Oil Pollution Act of 1990 (OPA).

Frequently Asked Questions

EPA receives calls on a regular basis requesting answers to questions related to the E&P exemption. The most common questions and answers are listed below.

Q: Are RCRA-exempt wastes also exempt under other federal laws?

A: Not necessarily. Unless specifically excluded from regulation under other federal laws, RCRA-exempt wastes might still be subject to regulation under authorities other than RCRA.

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Q: What is the benefit of the RCRA exemption if the operator is still liable for cleanups under RCRA?

A: Although the operator might still be liable for cleanup actions under RCRA for wastes that pose an imminent and substantial endangerment to human health and the environment, the RCRA exemption does allow the operator to choose a waste management and disposal option that is less stringent and possibly less costly than those required under RCRA Subtitle C. The operator,

however, should make every effort to choose the proper management and disposal procedures for a particular waste to avoid the need for later cleanup action.

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Q: When is a waste considered "uniquely associated with" exploration and production operations?

A: A waste is "uniquely associated with" exploration and production operations if it is generated from a material or procedure that is necessary to locate and produce crude oil or natural gas. Also, a waste is "uniquely associated with" exploration and production operations if it is generated from a material or procedure that only occurs during the exploration and production of crude oil or natural gas. A simple rule of thumb for identifying "uniquely associated wastes" is whether the waste came from downhole or otherwise was generated in contact with the oil or gas production stream for the purpose of removing water or other contaminants from the well or the product.

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Q: Are wastes generated from a transportation pipeline considered exempt wastes under RCRA Subtitle C?

A: No. The RCRA Subtitle C exemption only applies to wastes generated from the exploration, development, and production (i.e., primary field operations) of crude oil or natural gas. Hence, wastes generated from the transportation of crude oil or natural gas are not RCRA-exempt.

Q: Do exempt wastes lose their exempt status if they undergo custody transfer and are transported offsite for disposal?

A: No. Custody transfer is used to define the endpoint of production operations for crude oil and applies only to the change in ownership of the product (e.g., crude oil). Exempt wastes maintain their exempt status even if they undergo custody transfer and are transported offsite for disposal or treatment.

Q: Are all wastes generated at facilities that treat or reclaim exempt wastes also exempt?

A: No. The exemption applies only to those wastes derived from exempt wastes, not to additional wastes generated by the treatment or reclamation of exempt wastes. For example, if a treatment facility uses an acid in the treatment of an exempt waste, any waste derived from the exempt waste being treated is also exempt but the spent acid is not.

Q: When does transportation begin?

A: For crude oil, transportation begins at the point of custody transfer of the oil or, in the absence of custody transfer, after the endpoint of production separation and dehydration. Storage of crude oil in stock tanks at production facilities is considered part of the production separation process, not transportation, and is

included in the exemption. For natural gas, transportation begins at the point where the gas leaves the facility after production separation and dehydration at the gas plant. Natural gas pipelines between the gas well and the gas plant are considered to be part of the production process, rather than transportation, and wastes that are uniquely associated with production that are generated along such a pipeline are exempt.

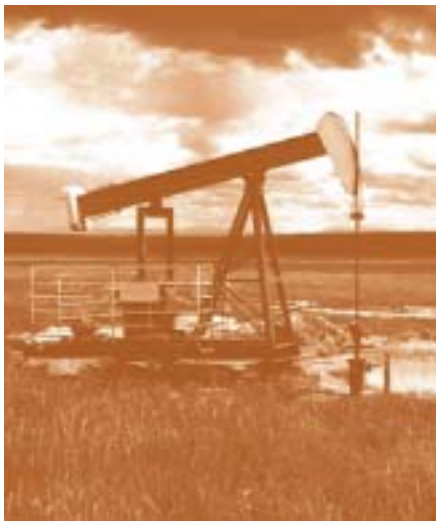
EPA periodically issues interpretive letters regarding the oil and gas exemption. One such letter was in response to a request for clarification of the exempt or non-exempt status of wastes generated at natural gas compressor stations. In some regions, such as the Appalachian states, natural gas might not require sweetening or extensive dehydration. Therefore, the gas generally does not go to a gas plant but is carried from the wellhead to a main transmission line and, in some cases, directly to the customer. Compressor stations are located as needed along the pipelines that run between the wellhead and the main transmission line or the customer to maintain pressure in the lines. The Agency has taken the position that these compressor stations (in the absence of gas plants, and handling only local production) should be treated the same as gas plants, and that wastes generated by these compressor stations are exempt. On the other hand, compressor stations located along main gas transmission lines are considered to be part of the transportation process, and any wastes generated by these compressor stations are non-exempt.

Sensible Waste Management

Sensible waste management begins with "good housekeeping." Prudent operators design E&P facilities and processes to minimize potential environmental threats and legal liabilities. EPA promotes sensible waste management practices through a number of joint efforts with organizations such as API, individual states, and the Interstate Oil and Gas Compact Commission (IOGCC). The following waste management suggestions have been compiled from publications produced by these organizations as well as from literature available from industry trade associations, trade journals, and EPA.

Suggested E&P Waste Management Practices

- Size reserve pits properly to avoid overflows.
- Use closed loop mud systems when practical, particularly with oil-based muds.
- Review material safety data sheets (MSDSs) of materials used, and select less toxic alternatives when possible.
- Minimize waste generation, such as by designing systems with the smallest volumes possible (e.g., drilling mud systems).
- Reduce the amount of excess fluids entering reserve and production pits.
- Keep non-exempt wastes out of reserve or production pits.
- Design the drilling pad to contain stormwater and rig-wash.
- Recycle and reuse oil-based muds and high density brines when practical.
- Perform routine equipment inspections and maintenance to prevent leaks or emissions.
- Reclaim oily debris and tank bottoms when practical.
- Minimize the volume of materials stored at facilities.
- Construct adequate berms around materials and waste storage areas to contain spills.
- Perform routine inspections of materials and waste storage areas to locate damaged or leaking containers.
- Train personnel to use sensible waste management practices.



Sources of Information

Resource Conservation and Recovery Act (RCRA)

RCRA regulates hazardous waste generators, hazardous waste transporters, and hazardous waste treatment, storage, and disposal facilities (TSDFs). RCRA encourages environmentally sound methods for managing commercial and industrial waste, as well as household and municipal waste.

RCRA Resources:

- 40 CFR Parts 260 to 279
- RCRA Call Center: 800 424-9346 or Washington, DC Area Local 703 412-9810 or TDD 800 553-7672 or TDD Washington, DC Area Local 703 412-3323 Fax: 703 308-8686
- Internet access: <www.epa.gov/epaoswer/other/oil/index.htm>

Clean Water Act (CWA)

The Water Pollution Control Act, commonly known as the Clean Water Act (CWA), is the Federal program designed to restore and maintain the integrity of the nation's surface waters. CWA controls direct discharges to surface waters (e.g., through a pipe) from industrial processes or stormwater systems associated with an industrial activity. It also regulates indirect discharges, or discharges to publicly owned treatment works (POTWs) through a public sewer system, by requiring industrial facilities to pretreat their waste before discharging to a public sewer.

CWA Resources:

- 40 CFR Parts 100-129 and 400-503
- EPA Office of Water: 202 260-5700
- State water authority, regional EPA office, and local POTW
- Internet access: <www.epa.gov/ow/>

Oil Pollution Prevention (Spill Prevention, Control and Countermeasures Regulations)

Spill prevention, control and countermeasures (SPCC) regulations promulgated pursuant to the CWA are designed to protect our nation's waters from oil pollution caused by oil spills that could reach the navigable waters of the United States or adjoining shorelines. The regulations apply to non-transportation-related facilities with a specific aboveground or underground oil storage capacity that, due to its location, can be reasonably expected to discharge oil into the navigable waters of the United States.

SPCC Regulations Resources:

- 40 CFR Part 112
- RCRA Call Center: 800 424-9346
- Internet Access: <www.epa.gov/oilspill/index.htm>

Discharge of Oil

The section of the CWA regulations commonly known as the “sheen rule” provides the framework for determining whether a facility or vessel responsible for an oil spill must report the spill to the federal government. These rules require oil spills that may be “harmful to the public health or welfare” to be reported to the National Response Center. Usually, oil spills that cause a sheen or discoloration on the surface of a body of water, violate applicable water quality standards, and cause a sludge or emulsion to be deposited beneath the surface of the water or on adjoining shorelines, must be reported.

Discharge of Oil Regulations Resources:

- 40 CFR Part 110
- RCRA Call Center: 800 424-9346
- Internet Access: <www.epa.gov/oilspill/index.htm>
- Reporting discharges to the National Response Center: 800 424-8802.

Oil Pollution Act (OPA)

OPA of 1990 amended the CWA, and provided new requirements for contingency planning by government and industry under the National Oil and

Hazardous Substances Pollution Contingency Plan. OPA also increased penalties for regulatory noncompliance, broadened the response and enforcement authorities of the federal government, and preserved state authority to establish laws governing oil spill prevention and response.

OPA Resources:

- Internet Access: <www.epa.gov/oilspill/index.htm>

Safe Drinking Water Act (SDWA)

SDWA mandates that EPA establish regulations to protect human health from contaminants present in drinking water. Under the authority of the SDWA, EPA developed national drinking water standards and created a joint federal/state system to ensure compliance with these standards. EPA also regulates underground injection of liquid wastes through the Underground Injection Control (UIC) program under the SDWA. The UIC program regulates five classes of injection wells to protect underground sources of drinking water.

SDWA Resources:

- 40 CFR Parts 141-143 (SDWA); 40 CFR Parts 144-148 (UIC)
- SDWA Hotline: 800 426-4791
- State oil and gas regulatory authority.
- Internet Access: <www.epa.gov/ogwdw>

Clean Air Act (CAA)

CAA regulates air pollution. It includes national emission standards for new stationary sources within particular industrial categories. It also includes the National Emission Standards for Hazardous Air Pollutants (NESHAPs), which are designated to control the emissions of particular hazardous air pollutants (HAPS). NESHAPs specific to oil and gas production were promulgated in 1999.

The CAA includes a Risk Management Program. This program requires stationary sources with more than a threshold quantity of a regulated substance (designated in the regulations) to develop and implement a risk management program (RMP). The RMP must include a hazard assessment, a prevention program, and an emergency response program.

CAA Resources:

- 40 CFR Parts 50-99
- Control Technology Center, Office of Air Quality, Planning and Standards (OAQPS), EPA, General Information: 919 541-0800; Publications: 919 541-2777
- RCRA Call Center (CAA §112(r) questions): 800 424-9346
- Internet Access: <www.epa.gov/oar/oaq_caa.html>
- Oil and Gas Production NESHAPs Rule: <www.epa.gov/ttn/uatw/oilgas/oilgaspg.html>

The Emergency Planning and Community Right-to-Know Act (EPCRA)

EPCRA was designed to improve community access to information about potential chemical hazards and to facilitate the development of chemical emergency response plans by State and local governments. EPCRA regulations establish four types of reporting obligations for facilities that store or manage certain chemicals above specified quantities.

EPCRA Resources:

- 40 CFR Parts 350-372
- RCRA Call Center: 800 424-9346
- Internet Access: <www.epa.gov/opptintr/tri/> and <www.epa.gov/swercepp>

Comprehensive Environmental Response Compensation, and Liability Act (CERCLA or Superfund)

Superfund authorizes EPA to respond to releases, or threatened releases, of hazardous substances that might endanger public health, welfare, or the environment. It also grants EPA the authority to force parties responsible for environmental contamination to clean it up or to reimburse response costs incurred by EPA. CERCLA also contains hazardous substance release reporting regulations that require facilities to report to the National Response Center (NRC) any release of a hazardous substance that exceeds the specified quantity for that substance.

CERCLA Resources:

- 40 CFR Parts 300-399
- RCRA Call Center: 800 424-9346

- Internet Access: <www.epa.gov/superfund>

Toxic Substances Control Act (TSCA)

TSCA allows EPA to collect data on chemicals to evaluate, assess, mitigate, and control risks that might be posed by their manufacture, processing, and use. Facilities are required to report information as necessary to allow EPA to develop and maintain this inventory.

TSCA Resources:

- 40 CFR Parts 702-799
- TSCA Hotline: 202 554-1404
- Internet Access: <www.epa.gov/internet/opptsfrs/home/opptsim.htm>

Other EPA Information Resources

Office of Solid Waste
Industrial and Extractive Wastes Branch
1200 Pennsylvania Avenue, NW.
Mail Code 5306W
Washington, DC 20460

RCRA Call Center: 800 424-9346 or
Washington, DC Area Local 703 412-9810 or
TDD 800 553-7672 or TDD Washington, DC
Area Local 703 412-3323 Fax: 703 308-8686
Internet access: <www.epa.gov/epaoswer/hotline>

The RCRA Call Center is a publicly accessible service that provides up-to-date information on several EPA programs. Please note that the Center cannot provide regulatory interpretations. It also processes requests for relevant publications and information resources.

Office of Emergency and Remedial Response, Oil Spill Program
1200 Pennsylvania Avenue, NW.
Washington, DC 20460
Oil Spill Program Information Line: 800 424-9346
Internet access: <www.epa.gov/oilspill/>

The Office of Emergency and Remedial Response (OERR) manages the Superfund and Oil Spill programs.

National Response Team

c/o U.S. EPA
1200 Pennsylvania Avenue, NW.
Washington, DC 20460
Telephone: 800 424-8802
Fax: 202 260-0154
Internet access: <www.nrt.org>

The National Response Team and the Regional Response Teams are the federal component of the National Response System (NRS), the federal government's coordinated mechanism for emergency response to discharges of oil and releases of chemicals. The NRT is chaired by the U.S. EPA with the United States Coast Guard serving as Vice Chair. The National Response Center (800 424-8802) is the sole federal point of contact for reporting oil and chemical spills.

Other Federal Agencies

U.S. Department of Interior

U.S. Bureau of Land Management
Fluid Minerals Group
1849 C Street, Room 406-LS
Washington, DC 20240
Telephone: 202 452-5125
Fax: 202 452-5124
Internet access: <www.blm.gov/nhp/300/wo310/>

The Bureau of Land Management's (BLM's) management of fluid minerals includes overseeing the production and conservation of oil and gas, geothermal energy, and helium. BLM is responsible for leasing oil and gas resources on all federally owned lands, including those lands managed by other federal agencies. This includes about 564 million acres of federal minerals estate, or about 28 percent of all lands within the United States. Additionally, BLM is responsible for the review and approval of all permits and licenses to explore, develop, and produce oil and gas and geothermal resources on both Federal and Indian lands.

U.S. Fish and Wildlife Service
Division of Environmental Quality
4401 North Fairfax Drive, Suite 322
Arlington, VA 22203
Telephone: 703 358-2148
Internet access: <contaminants.fws.gov>

The U.S. Fish and Wildlife Service is the main federal agency dedicated to protecting wildlife and their habitat from pollution's harmful effects. Specialists in the Environmental Contaminants Program focus on detecting toxic chemicals; addressing their effects; preventing harm to fish, wildlife and their habitats; and removing toxic chemicals and restoring habitat when prevention is not possible. These specialists are experts on oil and chemical spills, pesticides, water quality, hazardous materials disposal and other aspects of pollution biology.

U.S. Department of Energy

Office of Natural Gas & Petroleum Technology,
Office of Fossil Energy
1000 Independence Ave. SW. - Forrestal Building
Washington, DC 20585
Telephone: 202 586-6503
Fax: 202 586-5145
Internet access: <www.fe.doe.gov/programs_oilgas.html>

The Department of Energy's (DOE's) Office of Natural Gas and Petroleum Technology is responsible for the gas and oil exploration and production program, natural gas storage and delivery, downstream petroleum processing, and environmental and regulatory analysis programs for oil and natural gas operations, and natural gas import/export authorizations.

Other Information Resources

American Petroleum Institute

1220 L Street, NW.
Washington, DC 20005
Telephone: 202 682-8000
Internet access: <www.api.org>

The American Petroleum Institute (API) is the national trade association representing over 400 companies involved in oil and gas exploration, production, transportation, refining, and marketing. API represents its members in addressing public policy and regulatory issues. API also sponsors research, collects statistics, conducts workshops, and develops standards and recommended practices for industry equipment and operations.

Interstate Oil and Gas Compact Commission

P.O. Box 53127
Oklahoma City, OK 73152-3127
Telephone: 405 525-3556
Fax: 405 525-3592
E-mail: iogcc@iogcc.state.ok.us
Internet access: <www.iogcc.state.ok.us>

Founded by six states in 1935, the Interstate Oil and Gas Compact Commission (IOGCC) was established to control unregulated petroleum overproduction and resulting waste. "Since that time, states have established effective regulation of the oil and natural gas industry through a variety of IOGCC programs designed to gather and share information, technologies and regulatory methods."

Ground Water Protection Council

13208 N. MacArthur
Oklahoma City, OK 73142
Telephone: 405 516-4972
Fax: 405 516-4973
Internet access: <www.gwpc.org>

The Ground Water Protection Council is an organization whose members consist of state and federal ground water agencies, industry representatives, environmentalists, and concerned citizens. Since it includes state Underground Injection Control (UIC) program directors, it is the best source of data on Class II well injection issues.

National Governors' Association

Emergency Management and Oil Spill Prevention and
Response Project
Hall of States
444 North Capitol Street, NW.
Washington, DC 20001-1512
Telephone: 202 624-5300
Internet access: <www.nga.org>

The National Governors' Association's project on oil spill prevention, preparedness, and response offers states an opportunity to share their experiences and coordinate with the federal agencies involved in oil spill prevention and response. This program facilitates the exchange of information on successful state programs among state and federal emergency managers. NGA works with U.S. EPA to coordinate and promote state oil spill prevention programs by holding workshops, summarizing successful state oil programs, and establishing ongoing workgroups to discuss oil spill topics.

Publications

Title: "Report to Congress: Management of Wastes from the Exploration, Development, and Production of Crude Oil, Natural Gas, and Geothermal Energy," U.S. EPA, December 1987, NTIS Publication No. PB 88-146212.

Available from: National Technical Information Service, 5285 Port Royal Road, Springfield, VA 22161, 703 487-4650.

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Title: "Regulatory Determination for Oil and Gas and Geothermal Exploration, Development, and Production Wastes," July 6, 1988, Federal Register Volume 53, Pages 25446 to 25459.

Available from: RCRA Call Center, Washington, DC, 800 424-9346

Internet access: <www.epa.gov/epaoswer/other/oil/index.htm>

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Title: "Clarification of the Regulatory Determination for Wastes from the Exploration, Development, and Production of Crude Oil, Natural Gas and Geothermal Energy," March 22, 1993, Federal Register Volume 58, Pages 15284 to 15287.

Available from: RCRA Call Center, Washington, DC, 800 424-9346

Internet access: <www.epa.gov/epaoswer/other/oil/index.htm>

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Title: Associated Wastes Reports: "Crude Oil Tank Bottoms and Oily Debris," "Completion and Workover Wastes," "Dehydration and Sweetening Wastes."

Available from: EPA Office of Solid Waste

Internet access: <www.epa.gov/epaoswer/other/oil/execrep.htm>

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Title: "Profile of the Oil and Gas Extraction Industry"

Available from: EPA Office of Enforcement and Compliance Assurance

Internet access: <es.epa.gov/oeca/sector/index.html#oilgasex>

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Title: "Environmental Guidance Document: Waste Management in Exploration and Production Operations," API Bulletin E5, Second Edition, February 1997.

Available from: American Petroleum Institute, c/o Global Engineering Documents, 15 Inverness Way E., Englewood, CO 80112, 800 854-7179

Internet access: <www.api.org/cat>

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Title: "Guidelines for Commercial Exploration and Production Waste Management Facilities," (Order Number G0004), March 2001.

Available from: American Petroleum Institute, c/o Global Engineering Documents, 15 Inverness Way E., Englewood, CO 80112, 800 854-7179

Internet access: <www.api.org/ehs/CommFac>

Title: "Environmental Engineering for Exploration and Production Activities," Monograph Volume 18.

Available from: Society of Petroleum Engineers, P.O. Box 833836, Richardson, TX 75083-3836, 972 952-9393

E-mail: books@spe.org

Internet access: <www.spe.org>

Title: "Suggested Procedure for Development of Spill Prevention Control and Countermeasure Plans," API Bulletin D16, Second Edition, August 1, 1989.

Available from: American Petroleum Institute, c/o Global Engineering Documents, 15 Inverness Way E., Englewood, CO 80112, 800 854-7179

Internet access: <www.api.org/cat>

Title: "Onshore Oil and Gas Production Practices for Protection of the Environment," API Recommended Practice 51, Third Edition, February 2001.

Available from: American Petroleum Institute, c/o Global Engineering Documents, 15 Inverness Way E., Englewood, CO 80112, 800 854-7179

Internet access: <www.api.org/cat>

Title: "Revised Guidelines for Waste Minimization in Oil and Gas Exploration and Production."

Available from: Interstate Oil and Gas Compact Commission, P.O. Box 53127, Oklahoma City, OK 73152-3127, 405 525-3556

Internet access: <www.iogcc.state.ok.us>

United States
Environmental Protection Agency
Office of Solid Waste (5305W)
Washington, DC 20460

Official Business
Penalty for Private Use $300
EPA530-K-01-004
October 2002
www.epa.gov/osw

Appendix C

Renewable Resources Beneficial Use Permit

NORTH DAKOTA
DEPARTMENT *of* HEALTH

ENVIRONMENTAL HEALTH SECTION
Gold Seal Center, 918 E. Divide Ave.
Bismarck, ND 58501-1947
701.328.5200 (fax)
www.ndhealth.gov

File: Beneficial Use – Oilfields
Renewable Resources LLC - Permit 0363

May 7, 2015

Shawn Kluver
Renewable Resources LLC
10658 First Street NW
P.O. Box 657
Killdeer, ND 58640

Dear Mr. Kluver:

Renewable Resources LLC's beneficial use approval issued by the North Dakota Department of Health (Department) for the use of thermally-treated oilfield cuttings and similar material to solidify oilfield waste expired on December 15, 2013. Approval had not been reissued due to noncompliance issues which ultimately resulted in an Administrative Consent Agreement issued on May 5, 2014. The company appears to be progressing on the mutually agreed upon issues.

The thermally-treated material has elevated levels of salts (sodium chloride) which preclude uses as clean fill or for general uses in uncontrolled environments; however, we recognize that the material could be helpful for solidifying/stabilizing oilfield waste/drilling pits in North Dakota. We have reviewed the waste analysis of the post-burn material during review for the original approval.

The material has some elements, particularly sodium and chloride, that exceed safe drinking water standards or state water quality standards. As with many products, proper management is essential to minimize risks from dust, ingestion, dermal exposure or other means of exposure, particularly if it becomes airborne or is spilled. The material could also degrade soils, surface water and groundwater if it is spilled, released or improperly managed outside of a controlled environment.

Renewable Resources has cooperated with the Department and has shown progress toward reaching compliance at their permitted facility. Approval for beneficial use of this material is dependent upon continued progress and compliance with the North Dakota Solid Waste Management Rules. Once outdoor material in covered three-sided containers has been processed, treated and untreated material at the facility is to be stored and handled indoors unless otherwise authorized by the Department. The amount of untreated material stored in the designated indoor storage area shall never fill more than three-fourths of the designated building.

In addition to the control of materials at the permitted site, no materials will be delivered or off-loaded to sites that do not have adequate measures and structures (including storm water controls) for containment and control of the materials. No material is approved for off-loading or storage in the

open environment or in containers that may expose waste to the environment, The Department has concerns about uncontrolled introduction of this material into the environment. The following issues need to be addressed for prudent management of materials:

1. Waste material must not be stockpiled outside or placed anywhere outside buildings or controlled structures adequate to prevent uncontrolled introduction into surface water, groundwater, air and soils.

2. Adequate measures must be taken to prevent water contamination and to control and prevent water that has been in contact with waste from leaving the property.

3. Adequate measures must be employed to prevent contact of waste by stormwater;

4. Any storage and use of materials must be approved by a state agency and be adequately managed via a stormwater permit and Stormwater Pollution Prevention Plan. Information is at: http://www.ndhealth.gov/WQ/Storm/Industrial/IndustrialHome.htm

5. Adequate measures must be employed at all time to minimize windblown dust or dispersion of materials into the atmosphere and surrounding land.

As you know, our Department does not oversee the location, operation or reclamation of the oilfield waste drilling sites or fluids operations; these activities are under the direct oversight of the North Dakota Oil and Gas Division. We did not review any engineering or study information to document the reclamation properties of Renewable Resource LLC's treated material intended for solidification of oilfield waste.

This review and approval is for environmental issues only and is not a determination on the effectiveness of this particular material for waste stabilization. This review and approval is for treatment/solidification of oilfield waste only and placement is restricted to oilfield waste disposal pits approved by and acceptable to the North Dakota Oil and Gas Division. Other uses (soil stabilization or other uses) or placement are under review but are not approved at this time.

Contingent upon compliance with the requirements of this letter and state law and rules, the Department hereby approves use of Renewable Resource LLC's treated product for use in an approved oilfield waste disposal site for waste solidification, subject to North Dakota Administrative Code (NDAC) 43-02 and this approval.

Any person, company or business that owns or operates any premises, business establishment, or industry is responsible for the solid waste management activities such as storage, transportation, resource recovery, reuse or disposal of solid waste generated or managed at that person's premises, business establishment or industry. Solid waste shall not be released, spilled, abandoned or disposed upon any street, alley, highway, public place or private premises. No solid waste may be delivered to a facility which is not in compliance with NDAC Article 33-20 and/or NDAC 43-02.

Solid waste must be stored, collected and transported in a manner that provides for public safety and prevents uncontrolled introduction into the environment. Placement must avoid areas where water

accumulates or may run off to any waterway, wetland, field or other uncontrolled area. Material must not be placed near any water well or location where it could impact surface soils, plants, surface water, groundwater or air quality.

Based on the information provided, the Department has no objection to the request to use the proposed Renewable Resources LLC treated product if the proposed placement is properly managed and handled subject to the following conditions or stipulations which apply to any waste generator, marketer, transporter, contractor and/or end user of this material:

1. **Solid Waste Transporter Permit.** Any person or company transporting this material or any other waste material must obtain a **Solid Waste Transporter Permit** issued by the North Dakota Department of Health. Vendors, generators and contractors using this material shall not deliver or allow transport of this material by any transport company that does not have a valid permit. A permit application may be downloaded at: http://www.ndhealth.gov/wm/Publications/

2. **Compliance and Education Required.** Transportation and handling of this waste material must be in accordance with the North Dakota Solid Waste Management Rules and Law, the North Dakota Waste Transportation Permit, this approval and any requirements of the North Dakota Oil and Gas Division. **Drivers of transportation vehicles and any contractors, end users and any persons** using or handling this material must be instructed in proper handling of the waste material and be provided:

   a. A copy of this beneficial use determination;

   b. A Material Safety Data Sheet for the material;

   c. Personal protective equipment appropriate for the material; and

   d. Any other information or equipment necessary for proper management.

3. Placement must avoid areas near homes, residences, play areas, business places or other areas where people or livestock may come into contact with the material.

4. All reasonable efforts shall be employed during material transport, handling and use to minimize spillage, leakage, uncontrolled release, windblown dust and/or airborne contaminants, including exposure of workers engaged in using the material as well as nearby receptors. Placement during periods of high winds or significant precipitation must be avoided.

5. Depending on the severity of the spill or accidental discharge, the owner or operator shall:

   a. Take immediate remedial measures;

   b. Determine the extent of pollution to waters, land or atmosphere of the state;

c. Provide alternate water sources to water users impacted by the spill or accidental discharge; and

d. Take any other actions necessary to protect human health and the environment.

e. Non-emergency releases shall be reported by filling out the online Environmental Incident Report Form: http://www.ndhealth.gov/ehs/eir/eirform.htm

6. **SPILL, RELEASE AND NONCOMPLIANCE REPORTING REQUIRED.** Should any material or material containing waste be spilled, released or otherwise discharged, the material shall be properly managed to minimize impacts to air, water and soil. Any spill, release or noncompliance shall be provided verbally within twenty-four (24) hours from the time the transporter, user, marketer or person responsible becomes aware of the circumstances. The owner, operator or person responsible must notify the Department (701-328-5210 and 701-328-5166) and the North Dakota hazardous materials emergency assistance and spill reporting number (1-800-472-2121), and provide all relevant information about the spill or release.

The following shall be included as information which must be reported verbally:

a. Name, address and telephone number of the owner or operator;

b. Location of the spill or release;

c. Date, time and type of incident;

d. Name and quantity of materials involved;

e. The extent of injuries, if any;

f. An assessment of actual or potential hazards to the environment and human health outside the facility, where this is applicable; and

g. Estimated quantity and disposition of recovered material that resulted from the incident. A written submittal must also be provided within five (5) days of the time the Permittee becomes aware of the circumstances. The written submittal must contain a description of the noncompliance and its cause, the period of noncompliance (including exact dates and times), and if the noncompliance has not been corrected, the anticipated time it is expected to continue, and steps taken or planned to reduce, eliminate, and prevent recurrence of the noncompliance.

h. Other Noncompliance: The owner, operator, person responsible or marketer shall verbally report all instances of noncompliance not otherwise reported upon discovery and submit written notification within five (5) days. The report of noncompliance shall include all pertinent information described in this condition as well as any other

pertinent information. Noncompliance shall also be included in monthly waste intake report submitted to the Department.

7. The beneficial use project must be designed and managed in a manner consistent with all applicable environmental statutes and permits, and approval and must be completed in a manner that will not pose a significant risk to public health or the environment. It is the responsibility of the user of this material to make sure the activities are compliant with all other applicable federal, state, and local regulations, ordinances, land use rules and any other requirements.

8. Any revisions in the guidance should be adhered to for future requests. In addition, the site must be properly covered with clean soil and topsoil to facilitate proper vegetative growth. No waste material should be exposed after site reclamation.

9. Should the nature of the waste material change (such as a change in the process or handling of the waste, commingling of the waste with other waste materials, a change in fuel type, feedstock, etc.) or should additional information regarding this material arise such that it would pose an increased risk to public health and the environment, it is the responsibility of the approved user to provide the Department with adequate characterization information to reevaluate this determination.

10. The Department, at any reasonable time, shall be allowed to inspect locations where the solid waste is stored or used to ensure compliance with state rules and any conditions of this approval.

11. Any unused material must be returned to the supplier, beneficially used, or properly disposed in a municipal, industrial or special waste landfill permitted by the Department or in a facility approved within the state having jurisdiction.

12. Renewable Resources LLC shall continue to submit a report to the Department by the 10th day of each month detailing the beneficial use activities during the previous month calendar month. This report shall include the following information:

    a. The amount of solid waste beneficially used and a description of how it is used;

    b. A certification that the nature of the waste and the operating practices have been in compliance with the terms and conditions of this beneficial use approval; and

    c. Any necessary or additional information required by the Department to keep the Department aware of the use and management of the material and its suitability for said use.

This review is based on the information presented and our knowledge of the issues at that time. This approval regards environmental and health issues only and does not constitute an endorsement of the material. The name of the North Dakota Department of Health and its employees shall not be used in any advertisement or endorsement without the Department's written consent. The Department

reserves the right to request additional information and/or modify or rescind our approval for use of this material.

This beneficial use review and approval is solely for Renewable Resources LLC and the North Dakota Industrial Commission's use of Renewable Resources LLC products, as proposed, and does not apply to other materials, other uses or other companies, or individuals not reviewed as part of this proposal. This beneficial use approval is effective until May 7, 2017, unless modified, superseded or revoked. After reviewing the factors identified in this letter and any incidences or occurrences not in accordance with this approval and/or any state laws, rules or requirements, this approval may be amended, revoked, or reissued upon request from Renewable Resources LLC. This approval is contingent upon the cleanup and compliance with state rules as discussed in this letter and other correspondence.

Should you have any comments or questions regarding this matter, please contact us at 701-328- 5166.

Sincerely,

Steven J. Tillotson, Asst. Director
Division of Waste Management

SJT:SF:ljl
cc: Cody Vanderbusch, Reclamation Specialist, Department of Mineral Resources, North Dakota Industrial Commission, Oil and Gas Division

Tia Cook, Engineering Technician, Department of Mineral Resources, North Dakota Industrial Commission, Oil and Gas Division

Mark Bohrer, UIC Manager, Department of Mineral Resources, North Dakota Industrial Commission, Oil and Gas Division

Andrew Feia, Environmental Scientist, Wenck Associates Inc.

Bob Kleemann, Dunn County Commission

Appendix D

Acceptable and Prohibited Wastes

Acceptable Wastes

The permitted waste streams that can presently be accepted and treated of at Renewable Resources, LLC fall into the following two categories, Special and Industrial.

Special Waste
From Permit SW-0363
"Special Waste" is defined as solid waste that is not a hazardous waste regulated under NDCC 23-20.3 and includes waste generated from energy conversion facilities; wastes from crude oil and natural gas exploration and production; waste from mineral and ore mining, beneficiation, and extraction; and waste generated by surface coal mining operations. The term does not include municipal waste or industrial waste. Renewable Resources is further limited to USEPA-exempt natural gas and crude oil exploration and production wastes.

The primary Special Wastes accepted at Renewable Resources fall into the category described by the Resource Conservation and Recovery Act (RCRA) Section 3001(b) (2) (A): "Drilling fluids, produced waters, and other wastes associated with the exploration, development, or production of crude oil or natural gas or geothermal energy." Wastes included in this category are exempt from RCRA Subtitle C hazardous waste regulations. Specifically, the primary exploration and production (E&P) waste streams accepted at the facility include the following wastes:

- Drill cuttings;
- Basic sediment and other tank bottoms from storage facilities that hold product and exempt waste (refer to Section 3.2.2)
- Accumulated materials such as hydrocarbons, solids, sands, and emulsion from production separators, fluid treating vessels, and production impoundments (refer to Section 3.2.2);
- Pit sludge and contaminated bottoms from storage or disposal of exempt wastes (refer to Section 3.2.2);
- Gas plant dehydration wastes, including glycol-based compounds, glycol filters, and filter media, backwash, and molecular sieves;
- Work-over wastes;
- Materials ejected from a producing well during blowdown (refer to Section 3.2.2);
- Cooling tower blowdown;
- Pipe scale, hydrocarbon solids, hydrates, and other deposits removed from piping and equipment prior to transportation (refer to Section 3.2.2);
- Produced sand or fracking sand gel that is nonradioactive;
- Hydrocarbon-bearing soil;
- Pigging wastes from gathering lines (refer to Section 3.2.2);
- Wastes from subsurface gas storage and retrieval, except for the non-exempt wastes in USEPA's Publication "Exemption of Oil and Gas Exploration and Production Wastes from Federal Hazardous Waste Regulations" (see Appendix B); and
- Constituents removed from produced water before it is injected or otherwise disposed of down Class II injection wells.

Fluid E & P wastes proposed for acceptance at this facility include:

- Produced water (refer to Section 3.2.2);
- Drilling fluids;
- Rigwash;
- Geothermal production fluids (refer to Section 3.2.2);
- Well completion, treatment, and stimulation fluids;

- Packing fluids;
- Liquid hydrocarbons removed from the production stream but not from oil refining (refer to Section 3.2.2);
- Waste crude oil from primary field operations; and
- Light organics volatilized from exempt wastes in reserve pits, impoundments, or production equipment.
- E & P fluids with high solids content (>25%) (refer to Section 3.2.2);
- Flowback; and
- Petroleum (oily) spill material from locations or lease sites prior to transport.

This Site may accept other types of waste upon NDDH/NDIC approval.

Non-Hazardous Industrial Waste
"Industrial waste" is defined as solid waste, which is not a hazardous waste regulated under Chapter 23-20.3, generated from the combustion or gasification of municipal waste and from industrial and manufacturing processes. The term does not include municipal waste or special waste. Renewable Resources does not intend to accept municipal waste combustor ash at the Site. However, acceptable industrial waste may include, but is not limited to, residues or spills of any industrial or manufacturing process and waste resulting from the following:

- Petroleum-contaminated waste including soil or other material that has been impacted by leaking underground or aboveground storage tanks;
- Natural gas and/or crude oil-impacted wastes associated with pipeline, truck or rail transportation releases;
- Floor drain and sump sludge associated with car or truck wash facilities and automotive repair facilities;
- Saltwater-contaminated waste; and
- Petroleum-contaminated stormwater.

Note: Neither Municipal Solid Waste nor MSW Combustor Ash will be accepted at Renewable Resources.

Waste will typically be received in bulk form. In addition to the bulk loads, totes and drums containing acceptable materials may be received. All loads, containers and totes will be inspected to ensure the material is consistent with the acceptance procedures as further defined herein. All sealed drums will be opened to verify the material contained is an acceptable waste.

This Site may accept other types of industrial waste upon NDDH and NDIC approval.

[For more information on acceptable E & P Wastes, see Appendix B.]

Prohibited Waste

Waste from unknown origin and not certified by the waste generator as non-hazardous waste will not be accepted at Renewable Resources unless adequate samples of the waste material are taken, analyzed by a qualified testing company, and found to be acceptable, non-hazardous waste material.

The following wastes will not be accepted at the Site:

- Municipal or household waste and putrescible waste;
- Animal carcasses;
- Waste grain, seed, and elevator screenings;
- Pesticide containers;
- Lead-acid batteries;
- Used oil;
- Scrap metal;
- Metal appliances;
- PCB waste/oils;
- Hazardous wastes [i.e., ignitables (solvents, paints and fuels), corrosives (acids and alkalies), reactives, toxicity characteristic wastes, and listed wastes];
- Electronic waste (televisions, computers, monitors, printers, copiers, materials containing circuit boards, ballasts, capacitors, etc.);
- Mercury-containing devices (fluorescent lighting, switches, thermometers, thermostats, etc.);
- Hazardous materials;
- Manure (not accepted for disposal, but may be used in composting);
- Septic tank pumpings;
- Regulated radioactive wastes or Naturally Occurring Radioactive Material (NORM) wastes or Technically Enhanced Naturally Occurring Radioactive Material (TENORM) wastes above 5 picoCuries per gram (pCi/g) (Ra-226 + Ra-228);
- Agricultural waste;
- Inert waste;
- Asbestos-containing materials;
- Infectious wastes;
- Rendering and slaughterhouse waste;
- Waste that could spontaneously combust or that could ignite other waste because of high temperatures;
- Foundry waste;
- Ash from incinerators, resource recovery facilities, and power plants;
- Paint residue, paint filters, and paint dust; and
- Fiberglass, urethane, polyurethane, and epoxy resin waste.

Appendix E

Guidelines for Acceptance of Contaminated Soil (Petroleum and Other)

Guidelines for Acceptance of Petroleum or Saltwater Contaminated Soil at Renewable Resources, LLC

- Soil sampling of any industrial spill material will need to be completed to determine what the contamination is and at what concentrations the contamination levels are. This sampling should be coordinated with Renewable Resources, LLC prior to collecting and analyzing the samples.

- If the petroleum-contaminated soils have Total Petroleum Hydrocarbons (TPH) greater than 50,000 ppm, it will be reviewed on a per basis review.

- For salt-contaminated soils, concentrations for acceptance are not fixed, so Renewable Resources, LLC may use its own judgment, but based on analytical results of the salt content.

GUIDELINES TO MEET FOR ALL ACCEPTED CONTAMINATED SOILS.

- Submit an "Intake Generator Form" to Renewable Resources, along with all analytical results to begin the proposed acceptance process.

- Provide Renewable Resources with copies of soil sample results for the number of samples and analyses required for acceptance approval.

- Screen soils in the field with a PID meter (only necessary for petroleum-contaminated soils) and visually inspect for signs of contamination and debris during the excavation of contaminated soils.

- Inform Site of timeframe and anticipated delivery rate the material will be coming in.

- Delivery of material may be stopped at the Site's discretion based on Site storage and/or treatment capacity.

- Agree to pay a fee determined by Renewable Resources, LLC.

CONTAMINATED SOIL SUMMARY

Site from which Soil Originated

Company name: _____

Street: _____

City: _____ Zip: _____ State: _____ County: _____

Responsible Party for Soil

Contact: _____ Telephone: _____

Company name: _____

Street: _____

City: _____ Zip:_____ State:_____

Type of Contaminant(s):_____

Method of Soil Sample Collection: _____

Date of Soil Samples Taken: _____

Soil Sample Results						
Sample Number	TPH	DRO	GRO	Lead	Other (specify)	Other (specify)
	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg

Estimated Volume of Soil: _____**Cubic Yards**

Classification of Soil Type (sandy, clay, etc.):_____

_____

Along with the above information, please include the following:

- Copies of the analytical results from laboratory;
- Copy of soil sample chain of custody; or,
- Any Pipeline, UST or Environmental Incident Reports for the spill or cleanup.

Name and Title of Person Completing This Form (Print) _____

Signature of Person Completing This Form _____

Date _____

Appendix F

Toxicity Characteristic Constituents and Regulatory Levels
(Hazardous Waste Thresholds)

Toxicity Characteristics Constituents and Regulatory Levels (1)

	Regulatory Level (mg/L)	Threshold Level (mg/L)
Arsenic	5.0	2.5
Barium	100.0	50.0
Benzene	0.5	0.25
Cadmium	1.0	0.5
Carbon tetrachloride	0.5	0.25
Chlordane	0.03	0.015
Chlorobenzene	100.0	50.0
Chloroform	6.0	3.0
Chromium	5.0	2.5
o-Cresol	200.0 (3)	100.0 (3)
m-Cresol	200.0 (3)	100.0 (3)
p-Cresol	200.0 (3)	100.0 (3)
Cresol	200.0 (3)	100.0 (3)
2,4-D	10.0	5.0
1,4-Dichlorobenzene	7.5	3.75
1,2-Dichloroethane	0.5	0.25
1,1-Dichloroethylene	0.7	0.35
2,4-Dinitrotoluene	0.13 (2)	0.13 (2)
Endrin	0.02	0.01
Heptachlor (and its hydroxide)	0.008	0.004
Hexachlorobenzene	0.13 (2)	0.13 (2)
Hexachloro-1,3-butadiene	0.5	0.25
Hexachloroethane	3.0	1.5
Lead	5.0	2.5
Lindane	0.4	0.2
Mercury	0.2	0.1
Methoxychlor	10.0	5.0
Methyl ethyl ketone	200.0	100.0
Nitrobenzene	2.0	1.0
Pentachlorophenol	100.0	50.0
Pyridine	5.0 (2)	5.0 (2)
Selenium	1.0	0.5
Silver	5.0	2.5
Tetrachloreothylene	0.7	0.35
Toxaphene	0.5	0.25
Trichloroethylene	0.5	0.25
2,4,5-Trichlorophenol	400.0	200.0
2,4,6-Trichlorophenol	2.0	1.0
2,4,5-TP(Silvex)	1.0	0.5
Vinyl chloride	0.2	0.1

(1) From Table 11.2, Federal Register, Volume 55, No. 61.

(2) Quantitation limit is greater than the calculated regulatory level. The quantitation limit therefore becomes the regulatory level. It is also the acceptable threshold level.

(3) If o-, m-, and p-cresol concentrations cannot be differentiated, the total cresol concentration is used. The regulatory level for total cresol is 200 mg/L. The acceptable threshold level for total cresol is 100mg/L.

Appendix G

Miscellaneous Forms:

- Intake Generator Form
- Request for Chemical Analysis
- Radiation Screening Form
- TENORM Chain of Custody Form
- Load Rejection Form
- Environmental Incident Report Forms
    - Oil & Gas Related
    - General Spills

RENEWABLE RESOURCES

RENEWABLE RESOURCES Ticket No. 6001

Disposal Scheduling Intake Generator Form

Non-Hazardous Waste Manifest

10658 1st St. NW
Killdeer, ND 58640

Solid Waste Disposal Permit # 0363
Facility Air Permit # PTC12002

Phone: (701) 764-6749
Fax: (701) 764-6750

WASTE GENERATOR INFORMATION

Company Name: Address Line 1:

Contact Name: City:

Contact Phone: State:

Contact Email: Zip:

Contact Fax:

JOB DESCRIPTION:

Origin / Location / Well Name: Section Range Township:

Physical Address / County:

Site / Location Description:

Site Owner / Operator:

WASTE DESCRIPTION:

❑ Drill Cuttings (freshwater) ❑ Oil ❑ Pitwater ❑ Spill Material (Oil, Dirt and/or Scoria Mixture)

❑ Drill Cuttings (saltwater) ❑ Diesel ❑ Flowback ❑ Frac Gel ❑ Saltwater

❑ Drill Cuttings (invert) ❑ Sludge ❑ Invert ❑ Other

Load Size ❑ cu/yds ❑ Tons ❑ BBLS ❑ other

Additional Disclosures:

❑ E&P Exempt? ❑ Radio Active? ❑ NORM Tests? Radiation Reading:

Brief Description of Origin of Waste / Contaminent:

Signature of Generator's Authorized Rep: **Date**

The generator certifies that the waste described herein, is non-hazardous and meets the requirements of the exemptions as defined by Federal & ND State Environmental Regulations

Waste Transporter Information

Company Name: Phone:

Address:

City: State: Zip:

Truck Number: Driver's Name:

Transporter License #:

Driver Signature: Date:

STAMP

Renewable Resources, LLC – Request for Chemical Analysis

In order to verify that wastes accepted for treatment meet the acceptance criteria, chemical tests may need to be performed according to federal, state and county regulations. Additional testing may be required to verify that wastes will not cause undue harm to the environment or react with other wastes in the facility. This information, along with the other information requested, will be used to determine if the waste is acceptable at Renewable Resources, LLC.

Please complete the test(s) checked below.

Test Method	# of Tests	Other Requirements
☐ Total RCRA metals		
☐ Total VOCs		
☐ Gasoline Range Organics (GRO)		
☐ Diesel Range Organics (DRO)		
☐ TCLP* metals		
☐ TCLP VOCs		
☐ Semi-volatile organics (SVOCs)		
☐ Asbestos		
☐ Pesticides/Herbicides		
☐ pH		
☐ Ignitability		
☐ Synthetic Precipitation Leaching Procedure (SPLP)		
☐ ASTM Water Leach		
☐ Other:		
☐ Other:		
☐ Other:		
☐ Other:		
☐ Other:		

*TCLP is the EPA's Toxicity Characteristic Leaching Procedure (Method 1311)

Date	Invoice #	BBL's/Tons	Item	mR/hour x 1	Employee

Pace Analytical™
www.pacelabs.com

CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Page: 1 of 1

Section A Required Client Information:		Section B Required Project Information:		Section C Invoice Information:	
Company:	Renewable Resources, LLC	Report To:	Shawn Kluver	Attention:	Shawn Kluver
Address:	10658 1st St NW	Copy To:		Company Name:	Renewable Resources, LLC
	Killdeer, ND 58640			Address:	PO Box 657 Killdeer, ND 58640
Email To:	Shawn Kluver (shawn@wastedirt.com)	Purchase Order No.:		Pace Quote Reference:	
Phone:	701-764-6749 Fax: 701-764-6750	Project Name:	TENORM Testing	Pace Project Manager:	
Requested Due Date/TAT:	20 Day	Project Number:		Pace Profile #:	

REGULATORY AGENCY

NPDES GROUND WATER DRINKING WATER
UST RCRA OTHER x

Site Location STATE: ND

Section D Required Client Information

SAMPLE ID
(A-Z, 0-9 / ,-)
Sample IDs MUST BE UNIQUE

Valid Matrix Codes

MATRIX	CODE
DRINKING WATER	DW
WATER	WT
WASTE WATER	WW
PRODUCT	P
SOIL/SOLID	SL
OIL	OL
WIPE	WP
AIR	AR
OTHER	OT
TISSUE	TS

Requested Analysis Filtered (Y/N)

ITEM #	SAMPLE ID	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED COMPOSITE START DATE	COLLECTED COMPOSITE START TIME	COLLECTED COMPOSITE END/GRAB DATE	COLLECTED COMPOSITE END/GRAB TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H_2SO_4	HNO_3	HCl	NaOH	$Na_2S_2O_3$	Methanol	Other	Analysis Test Y/N	Ra-226, Ra-228	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.
1		SL	G																		
2		SL	G																		
3		SL	G																		
4		SL	G																		
5		SL	G																		
6																					
7																					
8																					
9																					
10																					
11																					
12																					
13																					

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS
	Shawn Kluver/Renewable Resources						

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Shawn Kluver

SIGNATURE of SAMPLER: DATE Signed (MM/DD/YY):

Temp in °C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)

Renewable Resources, LLC - Load Rejection Form

DATE_____ TIME_____ am / pm

CUSTOMER / GENERATOR

Name_____

Address_____

City/State/Zip_____

TRANSPORTER / HAULER

□ Same as Customer/Generator

Name_____

Address_____

City/State/Zip_____

Vehicle License & State_____

REASON FOR REJECTION

□ Suspected Special Waste □ Suspected Medical Waste □ Non-Processible
□ Suspected Hazardous Waste □ Suspected Asbestos □ Other (Explain)

Explanation_____

_____

ACKNOWLEDGEMENT

□ Rejected Prior to Dumping □ Rejected After Load was Dumped

Comments_____

_____

Driver's Signature_____

Operator's Signature_____

Customer/Generator Notified? □YES □NO Transporter/Hauler Notified? □YES □NO

If yes, name of person contacted If yes, name of person contacted

_____ _____

North Dakota Department of Health (1.701.328.5210 or 5166)
North Dakota Oil and Gas Division (1.701.328.8020)
North Dakota Department of Emergency Services (1.800.472.2121 24-Hour Hotline)

ENVIRONMENTAL INCIDENT REPORTS

Instructions For: | Oilfield Form | General Form | Fish Kill Form |

If there is any question as to proper response call the Department of Health, or the Oil and Gas Division, or the North Dakota Department of Emergency Services and provide all relevant information about the incident.

Oilfield Related Incident Report Form (click to go there) (If the report incident button on this form does not display another form, try adding the URL of the form to the trusted sites on your internet browser.)

This form is only for RCRA-exempt releases in the oilfield. This will generally include:

- Produced fluids such as crude oil, water, or oil/water emulsion before ownership transfer takes place, (i.e. a release from the producer's lease, flow lines, or tank battery before being trucked off-site or going into crude transportation pipeline.)
- Brine water from a commercial disposal facility.
- Condensate from gas lines or gas plant before leaving the gas plant in the transportation pipeline.

Please Note:

- Releases of crude oil or produced water from truck transport are not exempt and should use the General Environmental Incident Report Form link below.
- Releases of crude oil or other non-gaseous petroleum products from transportation pipelines are not exempt and should use the General Environmental Incident Report Form link below .
- Releases of non-oilfield-produced substances, even when released on an oil lease, are not exempt and should use the General Environmental Incident Report Form link below. This would include spills such as fuel for rig motors, acid for well stimulation, etc.

General Environmental Incident (and non-exempt Oilfield Related Incident) Report Form (click to go there)

This form should be used for any environmental incident or release that is not exempt under the RCRA oilfield exemptions. This will generally include:

- Any spill which may potentially have adverse effects to human health or the environment.
- Any incident or spill which may potentially result in pollution of waters of the state, either surface water or ground water.
- Specific minimum quantities for mandatory reporting of spills have not been established. All incidents which may potentially impact human health or safety, waters of the state, either surface water or ground water, or other impacts to the environment, must be reported.

- All substances are included, not just "hazardous materials." Recent examples that a person may not normally think of as having a potential impact to the environment, include "non toxic" substances such as molasses or salt. These may not be immediately harmful to human health, but they may impact aquatic life or soil fertility.

Please Note:

- Sometimes an environmental incident does not actually result in a release to the environment, but should still be reported. Examples might include the loss of a sealed radiation source or a traffic accident involving hazardous chemicals, even if the containers did not break open.
- Releases of crude oil or produced water from truck transport are not exempt and should use the General Environmental Incident Report Form.
- Releases of crude oil or other non-gaseous petroleum products from transportation pipelines are not exempt and should use the General Environmental Incident Report Form.
- Releases of non-oilfield-produced substances, even when released on an oil lease, are not exempt and should use the General Environmental Incident Report Form. This would include spills such as fuel for rig motors, acid for well stimulation, etc.

Fish Kill Report Form (click to go there)

Use this form to report a fish kill even if the cause is not known. If the cause is a known spill then also use one of the Environmental Incident Report Forms shown above.

Top of Page

NDDH Home Page
NDIC Oil & Gas Division Home Page

Last Updated: Monday, January 12, 2009 01:39:56 PM
Allen Johnson - ND Dept. of Health - ajohnson@state.nd.us

Well / Facility Information

Facility Type

All

County

All

Field

All

Facility # (/c	Name	Operat	Sec (/oil	Twp (/oi	Rng (/oil	QQ (/oilgas	Type (/oilga	Status (/oilg

0

No items to display

Clear All Filters | Use Selected Facility | Clear Selected

Select the well / facility above and click Use Selected Facility to auto-populate responsible party and location information.

If the incident is not from a well or facility then manually enter the below information as best as possible.

Required fields are marked with * and are still required to be entered.

Well / Facility Operator

Select Operator

Facility ID

Facility Number

Well File Number

Well File Number

Field Name

Select Oil Field

Well / Facility Name

Well Name

Submitters Information

First Name*

First Name

Last Name*

Last Name

Address*

Address

City*

City

State*

State (2 character abbreviation)

Zip*

Zip

Phone*

Phone

Email

Email

Responsible Party

Responsible Party*

Responsible Party

Address*

Address

Address

Address

City*

Responsible Party City

State*

State (2 character abbreviation)

Zip*

Responsible Party Zip

Contact Info

First Name*

Contact First Name

Last Name*

Contact Last Name

Telephone*

Contact Phone

Email

Contact Email

Incident Location Information

County*

Select County

Township*

Select Township

Range*

Select Range

Section*

Select Section

Quarter

Q

QQuarter

QQ

Location Description

Description of spill location if not on well or facility site. (0 of 1000 max characters)

General Land Use*

General Land Use

Affected Medium*

Affected Medium

Surface Owner

First & Last Name

Surface Owner Notified

Notification Type

Incident Information

Date of Incident*

Time of Incident*

If date of incident is unknown, enter date of discovery.

Enter time in hh:mm 24-hour military time, or select from list.

Distance From Nearest

Occupied Building

Unit

Units

Water Well

Unit

Units

Type of Incident*

Incident Type

Root Cause of Incident*

Root Cause of Spill

Was release contained?*

Was Release Contained

Estimated Release Volume

Oil

Units

Units

Brine

Units

Units

Other

Units

Units

Recovered Volume

Oil

Units

Units

Brine

Units

Units

Other

Units

Units

Description of other release substance

Description of other released substance. (0 of 150 max characters)

Cause of Incident*

Describe cause of spill or fire. (0 of 4000 max characters)

Areal extent of incident if not contained

Size of affected area. (0 of 100 max characters)

Immediate risk evaluation.*

Explosive atmosphere, immediate health hazards, etc. (0 of 150 max characters)

Potential environmental impacts.*

Describe impacts or likelihood of impacts to surface water, groundwater, soils, etc. (0 of 4000 max characters)

Action taken and recommened/planned future action*

How spill was contained, action taken to isolate or stop incident, any cleanup activities commenced, evacuation of nearby personnel, emergency approval to burn contaminant, etc. (0 of 4000 max characters)

Where will recovered wastes be disposed?

Where will recovered wastes be disposed? (0 of 1000 max characters)

Other Agencies Notified

- ☐ **Local Fire Department**
- ☐ **Local Law Enforcement**
- ☐ **State Fire Marshal**
- ☐ **State Highway Patrol**

Enter additional agencies below.

Enter other agenies notified above. (0 of 250 max characters)

Additional Email Recipients

If entering multiple e-mail addresses, separate them with a semicolon - do not use spaces. (0 of 250 max characters)

Has the incident been or will it be reported to the NRC? 1-800-424-8802.*

Reported to NRC

Pressing enter or the submit button will send an e-mail version of this completed Environmental Incident Report to NDDH Environmental Health Section personnel, ND DES and to NDIC Oil and Gas Division personnel.

Submit Incident Report

Reset Form

Environmental Incident Report

North Dakota Department of Health
Environmental Health Section
1.701.328.5210 or 1.701.328.5166

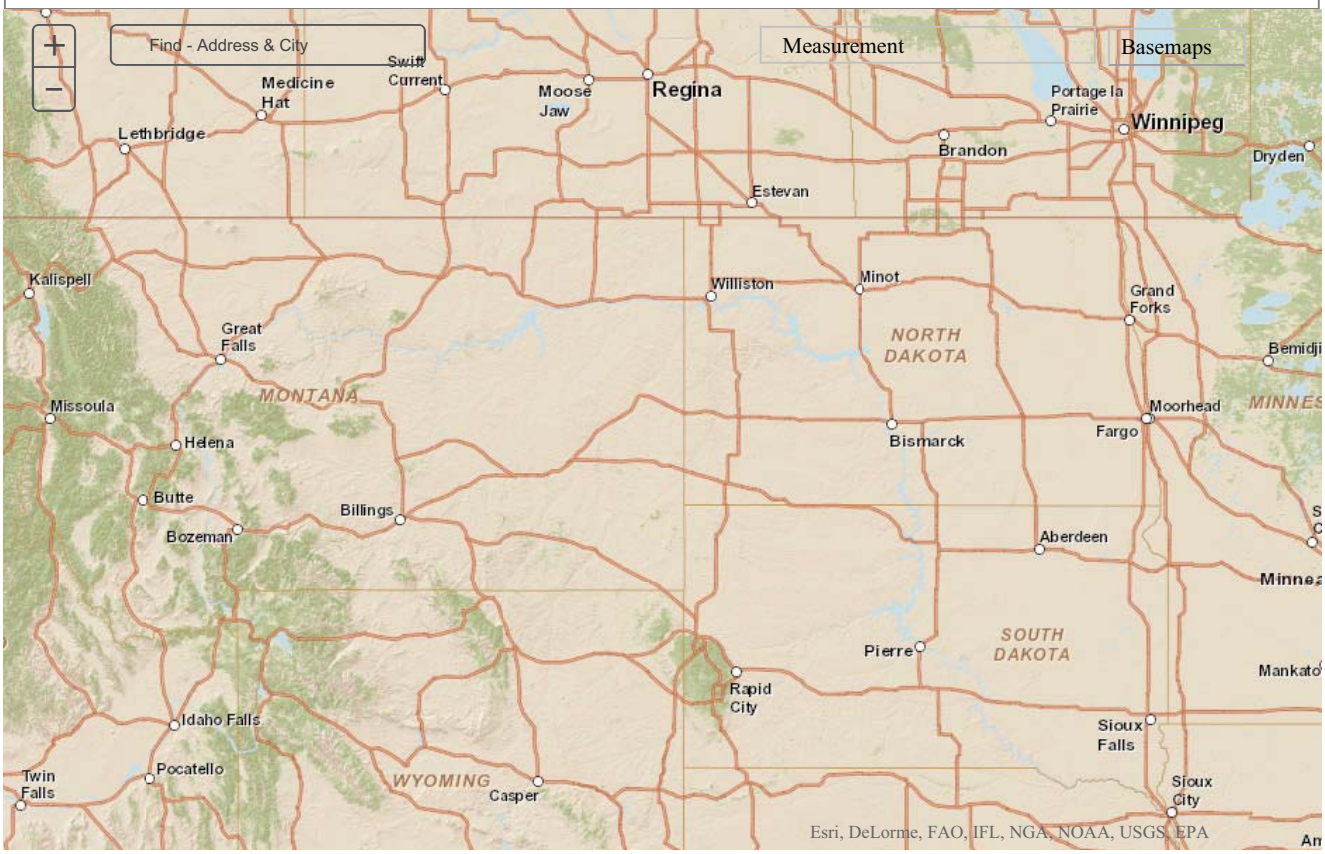
North Dakota Department of Emergency Services
1.701.328.8100
1.800.472.2121 State Radio 24-Hour Hotline

If this is an emergency, or for additional assistance, please call the Health or Emergency Services Department at the numbers shown above

This form is NOT for RCRA-exempt oilfield related incidents
(for RCRA-exempt oilfield incidents click here)
(if you are not sure which form to use click here)

Fill out information as completely as possible
Error messages appear to the right of the field
Use the Tab key or mouse to move between fields
Pressing the Enter key while in the form will submit the report
Required fields are shown in Red

Map Instructions:
DO NOT USE the ENTER key while in the map
To zoom, use + and - buttons or mouse wheel
To auto fill the required location data, click on the map at the desired location after zooming in to be as accurate as possible
The required location fields on the form always retain the data of the point designated by the red CIRCLE
Searching can be performed based on a 911 street address OR latitude/longitude coordinate
For address searching, type a valid street address and town (DO NOT INCLUDE STATE) into the search box and then click on the magnifying glass icon
For lat/long searching, type the decimal format negative LONGITUDE first, followed by a space and then the decimal format latitude, into the search box and then click on the magnifying glass icon. To convert from Degrees, Minutes, Seconds, use the link below the lat/long date field
If the search is successful, the map will jump to that location and mark it with a green SQUARE
A successful search DOES NOT auto fill. You must click on the square to turn it into a circle which will then auto fill
If you cannot read names or numbers because of lack of contrast, switch to another basemap using the Basemap dropdown



(If above map is not working correctly, click here for the ND Hub Explorer - use layers found under the Government Boundaries and Imagery headings)

LAT/LONG FIELDS ARE NOW REQUIRED - USE MAP TO AUTO FILL ALL THE REQUIRED LOCATION INFORMATION

Location Information:

County: Unknown
Township:
Range:
Section:
Quarter:
QQSection:
QQQSection:
Decimal Latitude:
Decimal Longitude:
Collection Method:
Date Lat/Long Recorded:

(Click here to convert Degrees, Minutes, Seconds to Decimal)

Location Description (facility name, 911 address or driving directions from nearest town)

Distance to Nearest Residence or Occupied Building: Units:

Incident Information:

Date: 7/2/2015
(mm/dd/yyyy) If unknown, enter date of discovery
Time:
(hhmm 24-hour time, no colon)
Type:

Estimated Duration: Units:
Estimated Volume: Units:

Substance released or of concern (include trade and/or chemical name if applicable)

Release Contained?

Agriculture Related? No
Is this substance on EPA's Extremely Hazardous Substance list? Unknown
To find out if this substance is on the EHS list, Click Here

Describe Cause

Action Taken and Recommended/Planned Future Action
(how spill was contained, soil excavated, emergency approval to burn, evacuation of nearby personnel, etc.)

Where will recovered wastes be disposed?

Impact Information:

Fatalities:

Injuries
Medium affected

Immediate Risk Evaluation (explosive atmosphere, immediate health hazards, etc.)

Potential Environmental Impacts
(describe impacts to, or likelihood of impacts, to surface water, ground water, soils, etc.)

Responsible Party Information:

Responsible Party
Address (Line 1)
Address (Line 2)
City
State/Province ND - North Dakota
Zip
Contact First Name
Contact Last Name
Contact Telephone
Contact Email
(party at above email address automatically receives email notification)
Property Owner if not the Responsible Party
Has or will the incident be reported to property owner? Unknown

Reporting Information:

First Name
Last Name
Affiliation
Address (Line 1)
Address (Line 2)
City
State/Province ND - North Dakota
Zip
Telephone
Fax
Email
(party at above email address does not automatically receive email notification)
Date Reported 7/2/2015
(mm/dd/yyyy)
Time Reported
(hhmm 24-hour time, no colon)

Other agencies that have or will be notified

- ☐ NDDES
- ☐ State Fire Marshal
- ☐ State Highway Patrol
- ☐ Local Fire Department
- ☐ Local Law Enforcement
- ☐ Local Emergency Manager

Other

To see if this incident is required to be reported to the National Response Center (NRC) Click Here
Has or will the incident be reported to the NRC ?? 1-800-424-8802 Unknown

Additional E-Mail Recipients to send report to

Official Use Only:

State Agency Person Who Received Call First Name
Last Name
Telephone
Agency
Department of Emergency Services Incident Number
Send this email to Department of Mineral Resources No

Pressing the submit button will send an E-Mail version of this completed Environmental Incident Report to NDDH Environmental Health Section and ND Dept. of Emergency Services personnel

Submit

Appendix H

NDDH Guidelines:

- 40 – Waste Transportation, Acceptance and Spillage Issues for Solid Waste Facilities
- 42 – Oil Field Exploration and Production Associated Waste Activities (Revised 04-2012)
- Waste Management Guide for Oilfield Exploration, Production, and Associated Commercial and Industrial Activities in North Dakota

GUIDELINE 40 – WASTE TRANSPORTATION, ACCEPTANCE AND SPILLAGE ISSUES FOR SOLID WASTE FACILITIES

North Dakota Department of Health - Division of Waste Management
918 E. Divide Ave., 3rd Fl., Bismarck, ND 58501-1947
Telephone: 701.328.5166 X Fax: 701.328.5200 X Website: www.ndhealth.gov/wm
Revised: 04-2015

To ensure efficient and compliant waste transport and waste acceptance procedures for solid waste facilities, the North Dakota Department of Health (Department) developed this guideline to increase communication and cooperation between waste generators, facility operators and commercial solid waste transporters. This guideline is intended to help prevent issues of waste spillage during delivery, inadequately prepared or loaded waste, inadequate waste characterization, unpermitted waste haulers, unsafe transport practices, and similar issues. Applicants for a solid waste facility permit or permit holders who are required to address this guideline via application review, permit condition or Department correspondence, should develop procedures as part of the facility plan of operation required under North Dakota Administrative Code (NDAC) 33-20-04.1-03. Pertinent portions of the rules for the plan of operation include:

33-20-04.1-03. Plan of operation. All solid waste management facilities, except those permitted by rule, shall meet the requirements of this section.

a. A description of waste acceptance procedures, including categories of solid waste to be accepted and waste rejection procedures as required by subsection 2 of section 33-20-05.1-02 or subsection 8 of section 33-20-06.1-02 or subsection 2 of section 33-20-07.1-01 or subsection 4 of section 33-20-10-03;

b. A description of waste handling procedures;

c. A description of facility inspection activities required by subsection 2, including frequency;

d. A description of contingency actions for the following:

(1) Fire or explosion;

(2) Leaks;

(3) Ground water contamination;

(4) Other releases (for example, dust, debris, failure of run-on diversion or runoff containment systems); and

(5) Any other issues pertinent to the facility.

f. Safety procedures;

h. A description of industrial waste or special waste management procedures, which include:

(1) A procedure for notifying solid waste generators and haulers of the facility operating requirements and restrictions;

(2) A procedure for evaluating waste characteristics, liquid content, the specific analyses that may be required for specific wastes, and the criteria used to determine when analyses are necessary, the frequency of testing, and the analytical methods to be used;

(3) A procedure for inspecting and for identifying any special management requirements, and the rationale for accepting or rejecting a waste based on its volume and characteristics;

(4) Procedures for managing the following solid waste, as appropriate:

(a) Bulk chemical containers which contain free product or residue;

(d) Radioactive waste;

(j) Sludges, including ink sludges, lime sludge, wood sludge, and paper sludge;

(m) Oil and gas exploration and production waste;

(n) Wastes containing free liquids;

(o) Contaminated soil waste from cleanup of spilled products or wastes; and

(p) Any other solid waste that the owner or operator plans to handle.

(5) The owner or operator must describe any solid waste that will not be accepted at the facility; and

i. The owner or operator must amend the plan whenever operating procedures, contingency actions, waste management procedures, or wastes have changed. The owner or operator shall submit the amended plan to the department for approval or disapproval.

2. The owner or operator shall inspect the facility to ensure compliance with this article, a permit, and approved plans. The owner or operator shall keep an inspection log including information such as the date of inspection, the name of the inspector, a notation of observations made, and the date and nature of any repairs or corrective action taken.

In addition, solid waste facilities must address NDAC 33-20-04.1-09. General disposal standards, which states, in part:

2. Construction and operation standards for solid waste management facilities regulated by this section:

   b. Roads must be constructed and maintained to provide access to the facility. Access roads must be cleaned and decontaminated as necessary.

Note: Other portions of the rules that may apply to these issues include:

33-20-01.1-04. Care and disposal of solid waste.
33-20-01.1-05. Collection and transportation vehicles.
33-20-02.1-01. Solid waste management permit required.
33-20-02.1-03. Permit compliance.
33-20-03.1-03. Permit application review and action.

The full text of NDAC Article 33-20 can be accessed at the Department's website at www.ndhealth.gov/WM/.

Or

NDAC Article 33-20 is at www.legis.nd.gov/information/acdata/html/33-20.html.

Waste Acceptance and Transportation Requirements

Prior to accepting waste from industrial or special waste generator or waste source, the solid waste facility permittee (Waste Facility) must provide adequate information on the facility's approved waste acceptance and transportation requirements. The Waste Facility must also receive signed documentation from each industrial or special waste generator that they are fully aware of the waste management requirements and that they will provide this information to any companies they will use for transporting waste to the facility.

In addition to specific Waste Facility requirements, the Department's waste management requirements include:

1. All industrial and special waste intended for transport and disposal shall be properly characterized, treated, stabilized, and handled.

2. All commercial waste transporters must have a valid permit unique to that company to transport solid waste issued by the Department. All waste must be transported in compliance with applicable permits, state laws and rules, and the facility requirements. If a waste transporter is subcontracting for another waste transporter, the subcontractor must have their own unique waste transport permit (see endnote).

3. The Waste Facility must take reasonable efforts to verify commercial transporters do indeed have a North Dakota Department of Health Waste Transporter Permit and that the permit is unique to that company.

4. All loads brought to the facility must be carefully loaded and transported such that waste will not fall, leak, spill, or release airborne waste materials during transit. No waste containing free liquids, other than household quantities, will be accepted. Windblown dust or airborne contaminants from waste or waste impacted materials is considered waste spillage.

5. Waste transporters are responsible for educating each individual driver under their employ and must monitor the loads to ensure all requirements are met. In the event a vehicle driver or operator notes the vehicle appears over-loaded, the waste appears likely to or is actually spilling or otherwise released, or should free liquids (including excess precipitation or snow melt on the waste) be observed from or within the load, the operator shall take appropriate actions and, if possible, without further release of waste, return the waste promptly to the waste generator for appropriate remedial measures. Covered or containerized waste loads are encouraged.

6. Should waste spillage or release occur, the collector or transporter must immediately cleanup and return spilled waste to the vehicle or container and clean and decontaminate the area. Transporters are encouraged to train vehicle operators on appropriate measures and to equip each transport vehicle with some basic cleanup equipment (shovels, bags, brooms, absorbent, plastic sheeting, etc.).

7. The Waste Facility must ensure adequate space for vehicle cleanup is afforded in an approved area in or close to the landfill unit. All spilled or cleanup materials must be properly handled, containerized and disposed as soon as practicable.

8. The outer surface areas and tires of transportation vehicles leaving the active landfill or unloading area where industrial or special waste is unloaded must be inspected by both the hauler and the facility staff to ensure the vehicle is adequately cleaned before exiting the landfill.

9. Adequate cleaning measures must ensure no waste is clinging to the outside or on the front, back, side-rails and tires of any vehicle, trailer, side dump, container or other equipment.

10. No cleaning of truck or trailer surfaces may take place outside of the active landfill cell or other area approved by the Department unless appropriate provisions are provided to contain all waste materials.

11. The Waste Facility shall provide adequate and repeated education to waste generators and haulers on proper waste handling and approved routes of access to the facility, including traffic flow, safety advisories, vehicle cleanup procedures, and similar information to ensure safe delivery of waste.

12. The Waste Facility shall monitor and document waste loads brought to the facility to ensure applicable requirements are met and that the vehicle or unit has been carefully loaded, moved, unloaded and cleaned.

Signage at or near the scale entrance to facility must clearly and boldly indicate:

a. "North Dakota Solid Waste Transporter Permit Required" and

b. "All loads brought to this facility must be carefully loaded and transported such that waste will not fall, leak, spill or release airborne waste materials during transit. Waste containing free liquids will not be accepted for disposal."

c. "All waste must be cleaned from outer vehicle surfaces and tires before exiting this facility."

Signage at or near the active disposal cell must also clearly state "All waste must be cleaned from outer truck surfaces and tires before exiting this facility." Additional signs may be needed to guide vehicle operators to the appropriate area for cleanup activities. Appropriate equipment and containers shall be provided to facilitate vehicle cleanup procedures.

Solid Waste Facility Waste Acceptance Requirements

In addition to the waste characterization and profiling information, prior to accepting any individual load of industrial or special waste, the Waste Facility shall record:

a. The Department's waste transporter permit number and the transport company name;
b. The vehicle license number;
c. The driver's name, address, phone number, email address, and any other pertinent information;
d. The company address, phone number, email address, and any other pertinent information;
e. The waste generator name, address, phone number, email address;
f. The location where waste was generated;
g. Any issues on waste characterization, liquid content, spillage, etc.; and
h. Any other pertinent information reasonably necessary to ascertain that waste has been properly transported and disposed at the facility in accordance with state law, rules and this permit.

If a waste transporter does not have a waste transporter permit unique to their company, the transport company and the waste generator must be promptly notified of the issue of noncompliance and the transporter must obtain a permit or waste loads will no longer be accepted from that transporter.

For any commercial transporter and/or waste generator who does not take timely measures to meet the facility waste acceptance and waste handling criteria; who does not address the Department's waste transportation permit requirements; who has repeated incidents of waste spillage or release; who does not properly load, unload, decontaminate equipment, and cleanup spillage; who does not

operate in a safe manner or who otherwise does not cooperate with the facility and state waste management and transportation requirements, the Waste Facility shall reject further loads and contact the transport company, the waste generator, and the Department regarding the incident. The Waste Facility shall complete a Waste Rejection Report form SFN 60120 and file it with the Department and the waste generator.

A Waste Rejection Report form SFN 60120 shall also be provided to the waste transporter who must also file this report with the Department.

Action for Waste Spillage or Releases from Transport Vehicles

Dependent on facility location in relation to traffic flow and access from major transportation arteries, the Waste Facility shall address appropriate inspection and cleanup procedures for the facility haul roads, access roads, and other facility areas as well as adjacent county roads as appropriate. Where waste transport vehicles turn off public roads, highways, and intersections to gain access to the facility, the inspections should monitor spillage issues within at least a mile of the turnoff facility entrance on an ongoing basis at least twice per operational day or more often if necessary to ensure that any waste that may have fallen, spilled, leaked, become airborne or otherwise escaped the confines of the transportation vehicle or container is promptly cleaned. Particular attention should be provided to areas where waste transport vehicles slowdown, stop or turn to gain access to the facility. Inspection records (which may include pictures) shall be retained as part of the facility operating record.

Inspection and cleaning of access roads and public roads must follow safe and prudent procedures. The North Dakota Department of Transportation (NDDOT) has information on its website for the "Adopt a Highway" program, which includes safety procedures, personnel protection as well as appropriate agreement forms. For public roadways and highways, facility managers must work with the NDDOT and/or county or local transportation officials as appropriate to ensure activities are safe and that appropriate procedures are followed. For cleaning waste from roadways, NDDOT may require more formal information such as insurance coverage, and other prudent information. The "Adopt a Highway" program information is on the NDDOT website at www.dot.nd.gov/public/adopt.htm.

The contact information for the NDDOT "Adopt a Highway" program is typically through the NDDOT district office. See www.dot.nd.gov/travel/districtinfo.htm.

Contact for county or city road departments is typically available on the local website; however, the NDDOT information may help address common issues of concern.

Normally it is the transporter's responsibility to clean waste spillage; however, if the transporter is not available or otherwise fails to clean and decontaminate the area in a timely manner, not to exceed four hours from identification of the incident, the facility must take appropriate measures. Any waste spilled or released must be promptly cleaned up and the area decontaminated in a safe manner as soon as practicable, typically no later than facility closure or by sunset of the day of operation, whichever is earlier. The Waste Facility staff, if appropriate, may do the cleanup, or the facility shall follow the incident spill report process and contact a third party cleanup crew to clean

and decontaminate the spill. A summary of the waste spillage and cleanup incidents noted by the Waste Facility shall be included in the facility reports. Facilities need to address appropriate measures to keep the roadways clean of regulated waste that is normally transported to the facility. Cleanup of litter and other debris not necessarily related to spillage incidents reflects well on a solid waste facility and demonstrates a good faith effort to Keep North Dakota Clean.

For waste loads arriving at the facility, if one or more loads are noted to have spilled or released waste, show evidence of waste spillage on the outside of the transport vehicle, contain free liquids, or otherwise do not meet the waste acceptance requirements, the transporter, driver and the waste generator shall be reminded of the state and facility waste management requirements. Facility staff must also inform waste transporters, drivers and waste generators that the waste loading and transport procedures must be properly amended to prevent further spillage. If a transporter and/or generator do not cooperate, further waste from that transporter and that generator is no longer approved for transport or disposal until compliance is achieved. For serious incidents or repeated incidents, the Department's Division of Waste Management shall be informed of the incident by phone or email and the Department's Waste Rejection Report form SFN 60120 shall be completed and submitted.

Waste transporters and/or generators who fail to comply with the requirements shall not be allowed to dispose further waste at the facility until they have clearly amended their waste handling practices to preclude further releases, have completed any additional remediation necessary, and have filed a report with the facility and the Department indicating what measures they have taken to be in full accordance with state and facility waste acceptance practices. Records of such issues shall be maintained in the facility operating records.

In the event of any spill or release of waste that has the potential to impact surface water, human health or the environment, the transporter or Waste Facility shall take appropriate remedial measures and file an Environmental Incident Report. Contact the North Dakota Department of Health (1.701.328.5210 or 5166) or online at www.ndhealth.gov/ehs/eir/Eirform.htm.

Note: A waste transporter permit may not be required for equipment that is rented by, operated for, and under direct control of a waste transporter that is already permitted by the North Dakota Department of Health so long as it is operated by and is insured by that permitted waste transporter, and all activities are in accord with state and facility requirements. The permitted waste transport company should include regular updates on the use of rented equipment in a notification to both the Department and the Waste Facility. In such instances, the transportation company holding the permit to transport solid waste shall educate the drivers on the state and Waste Facility requirements and assumes liability for transportation issues regarding waste materials.

GUIDELINE 42 - OILFIELD EXPLORATION AND PRODUCTION ASSOCIATED WASTE ACTIVITIES

North Dakota Department of Health - Division of Waste Management
918 E. Divide Ave., 3rd Fl., Bismarck, ND 58501-1947
Telephone: 701.328.5166 • Fax: 701.328.5200 • Website: www.ndhealth.gov/wm
Revised: 04-2012

Solid waste management facilities, transporters and waste generators in North Dakota must be in compliance with state law, rules and permits as administered by the North Dakota Department of Health, Division of Waste Management (Department). Waste generated by oilfield exploration and production activities and associated industrial, service, commercial, and construction activities may pose challenges for solid waste facilities, waste haulers and recyclers. Properly characterizing, segregating and managing wastes will help stressed solid waste facility staff and help avoid accidents, environmental impacts and waste being rejected by facilities. Cooperation between waste generators, waste haulers and facilities is essential to ensure efficient operation. Repeat problems may result in additional inspection requirements, increased handling and expense, and if necessary, enforcement. Some segregated materials may be recycled. Waste Haulers must have a permit issued by the Department **(see Links on last page).**

SPECIAL WASTE: Most waste from crude oil and natural gas exploration and production such as drilling cuttings, water, spills, and similar waste that is not managed at a drill site or injection well but is shipped off-site is classified as "Special Waste." Fly ash and Coal Combustion Waste is also "Special Waste." Most special waste is disposed or treated at permitted special or industrial waste facilities. Permitted Special Waste facilities have procedures approved for management of various materials and can provide guidance to waste generators **(see Links).**

Waste from crude oil handling and storage may be processed to recover oil at crude processing plants regulated by the **North Dakota Oil and Gas Division.**

INDUSTRIAL WASTE AND SPECIAL WASTE cannot be disposed or mixed with other waste destined for a **Municipal Solid Waste Landfill** without coordination and approval by the solid waste facility operators who must also coordinate approval with the Department. With proper characterization, segregation and handling, some waste may be managed at Municipal Solid Waste or Inert Waste landfills or may be recycled. Careful waste handling is essential to expedite orderly operations, hold down costs, reduce waste, and protect human health. **Poorly separated waste may be rejected or be subject to additional disposal costs as Industrial, Hazardous or Radioactive Waste (see Links).**

Haulers whose waste is rejected must file a report with the Department within five days of the rejected load. Contact Derek Hall at 701-328-5166, or fill out the SFN 60120 Rejected Waste Reporting form on line (see Links).

Solid Waste Facilities who reject a waste must also notify the Solid Waste program at 701-328-5166.

SPILLS, LEAKS, RELEASES, DUMPING, UNPERMITTED STORAGE REPORTING: Environmental incidents involving oilfield materials, chemicals, fuels, coal combustion materials, fly ash, solidifying agents, other waste materials, etc. that may impact human health or the environment must be promptly cleaned up and reported to the state. For emergencies, contact the local emergency manager. **Complete an environmental Incident form online (see Links).**

WASTE SEGREGATION REQUIREMENTS: Wastes should be carefully separated into categories described below and properly managed at approved recycling, processing or disposal facilities in accordance with state, federal and local requirements. Keep records on the amount removed from each facility or unit, how it is segregated and eventually managed, recycled or disposed.

HAZARDOUS (IGNITABLE, CORROSIVE, REACTIVE, TOXIC, LISTED) OR PCB WASTE including, but not limited to: unused chemicals or additives, paints, solvents, varnishes, stains, cleaners, degreasers, and similar ignitable products; aerosol cans, and compressed gas containers or cylinders; ammunition including unused shells, lead shot, bullets, powder-loading supplies, etc.; oils, fluids (transmission, hydraulic, brake, etc.); fuels, automotive additives, batteries (including lead, mercury, nickel-cadmium, etc.); acids and bases – often labeled corrosive (store acids separately from bases and do not mix!); toxics, poisons, pesticides (includes insect, rodent and weed killers); antifreeze; fertilizers; and other ignitable, corrosive, reactive, toxic, PCB, problem or unknown wastes. Separate and label wastes by type. Do not dispose or mix hazardous waste with non – hazardous waste. **Do not mix unlike materials. Use a Hazardous Waste Contractor (see Links).**

UNUSED CHEMICALS, ADDITIVES, UNUSED PRODUCTS, EXCESS RESIDUES AND PARTIALLY FULL CONTAINERS: Bulk, bags, buckets or containers of unused products or containing excess residue, including chemicals, additives, paints, potentially toxic materials, unknowns, or materials that may be toxic, cause injury or cause ignition are industrial wastes and may be hazardous. They may not be disposed or mixed with other waste materials unless approved by the solid waste facility operators. If unused product cannot be used for the intended purpose, the materials must be properly managed as industrial or hazardous waste. Antifreeze may be recycled. Unused chemical products or industrial waste may be managed by permitted industrial waste facilities **(see Links).**

ELECTRONIC WASTE (E-WASTE), LIGHTING AND UNIVERSAL WASTE includes batteries (all types), monitors, TV's, computers, light ballasts, mercury devices (thermostats, mercury switches, fluorescent bulbs, mercury bulbs, thermometers, etc.); light ballasts, transformers; circuitry, stereos, and similar materials. Please package fluorescent devices and bulbs and other fragile materials to avoid breaking. **These**

materials are generally hazardous and should be recycled (see Links).

LEAD BATTERIES ARE PROHIBITED FROM DISPOSAL in North Dakota landfills and must be segregated for recycling. Lead batteries should not be mixed with other materials and cannot be disposed. Please manage lead batteries carefully to ensure they are not broken. Use a scrap metal recycler or universal waste facility. (See Links)

USED OIL IS PROHIBITED FROM DISPOSAL. Lubricating oil, fluids (transmission, gear lube, hydraulic, brake, etc.) from vehicles and equipment must be recycled. Used oil must be separated in properly labeled containers. Any spillage must be promptly cleaned up. **Work with an oil recycler (see Links).**

OIL FILTERS can often be recycled as scrap metal if they are hot-drained and either crushed or punctured. Crushed or punctured and well-drained filters should be placed in labeled, leak proof containers which should be monitored to make sure free oil is removed. Well-drained, crushed and/or punctured filters may be recyclable. Landfills may not accept oil filters from commercial or industrial sources without approved Industrial Waste Procedures. Work with your local scrap metal recycler **(see Links).**

APPLIANCES ARE PROHIBITED FROM DISPOSAL. Freon-containing appliances such as refrigerators, freezers, dehumidifiers, air conditioners, must have the refrigerant removed by licensed technicians at a processing site. Handle these carefully to avoid damage to the refrigeration units. Capacitors and other electronic equipment may need to be removed. Remove food from appliances. **Remove or secure doors of large appliances and manage as Scrap Metal (see Links).**

RECYCLABLE METALS ARE PROHIBITED FROM DISPOSAL in North Dakota landfills. Generators should separate metals in labeled containers or piles and do not mix with waste. Power equipment, metal parts, ducting, pipes, structural steel, stoves, water heaters, metal furniture, heaters, furnaces, and other metal items can be managed to recover metal. **Oil, fuel and fluids may need to be removed** from some equipment for proper management. **Work with your local scrap metal recycler and local recycling programs. Aluminum and beverage cans are encouraged to be recycled (see Links).**

Recyclable metal commingled in waste containers, trucks or waste rolloffs should not be picked up or disposed. Scrap metal in a landfill can damage equipment, cause injury and cause the facility to be out of compliance. Some metal needs to be screened for radioactive materials to determine if it is acceptable for recycling. North Dakota promotes recycling of valuable scrap metals that are properly handled.

POTENTIALLY RADIOACTIVE WASTE AND TECHNOLOGICALLY ENHANCED RADIOACTIVE MATERIALS (TENORM). The following natural gas and crude oil production and transportation wastes (and wastes that may have been contaminated by such materials) shall not be delivered to a municipal or inert waste landfill or be co-mingled with other waste destined for such disposal. Generators should segregate

these wastes, store them in secure containers, and have them analyzed for Naturally Occurring Radioactive Material (NORM), specifically, Ra-226 and Ra-228 concentrations and Lead-210 by a state-approved analytical procedure or screening process. Materials of concern include, but may not be limited to:

a. Accumulated materials, including: solids, scale, sediment, production sand, emulsion, sludges, and other tank bottoms from storage facilities, separators, heater-treaters, vessels, tanks, and production impoundments that hold product or exempt waste;

b. Pipe scale, hydrocarbon solids, hydrates, and other deposits removed from tubular goods, piping, casing, filters, filter bags, clean-out traps and other equipment;

c. Pigging wastes from gathering lines;

d. Filter Socks and Proppant from oilfield exploration, production and deep well injection activities; and

e. **Any other waste material** suspected to contain TENORM or likely to have accumulated NORM or TENORM in concentrations equal to or greater than 5 picoCuries/gram (pCi/gm).

If the total laboratory-measured Ra-226 plus Ra-228 or Lead-210 activities are equal or greater than 5 pCi/gm, the waste will need to be shipped out of state to a facility acceptable for receiving such waste. There is no adjustment made for the background of the blending material. The 5 pCi/gm limit is for the waste stream as measured using a Department-approved analytical method and procedures. Waste below 5 pCi/gm may be disposed at an approved industrial or special waste facility **(see Links).**

ASBESTOS-CONTAINING MATERIAL may include asbestos pipe wrap, boiler coatings, loose insulation, transite (older cement type siding and electrical backing), vermiculite (light, platy insulating material) and other materials. **Notification, Inspection and Manifest requirements must be followed.** Label all bags or containers “Asbestos Waste.” REGULATED Asbestos Waste must be specially handled and disposed at approved solid waste facilities with prior notification and approval. Asbestos cannot be disposed with inert waste. (See other North Dakota Department of Health guidance on asbestos **(see Links).**

LIQUIDS MAY NOT BE DISPOSED (OTHER THAN HOUSEHOLD QUANTITIES).

INFECTIOUS WASTE AND MEDICATIONS, including needles, sharps, human blood or tissue, soaked dressings, isolation waste, pathological waste, infectious human or animal waste, pills, medicines, etc., may not be mixed with other waste but may be properly containerized and treated. **Household quantities** in labeled containers may be disposed with municipal waste (garbage) but **may not** be mixed with inert waste. **Do**

not flush or dispose medications in a sewer or septic system (see Links).

SCRAP TIRES: Scrap tires should be separated. Many landfills will not accept scrap tires that are mixed with loads of other wastes. Keep scrap tires separate so they can be more easily managed by solid waste facilities. Use an approved Scrap Tire facility **(see Links).**

OTHER WASTES. Solid waste facilities may specify other waste restrictions or procedures at their discretion. Some facilities may have restrictions on potentially windblown materials (plastic, cardboard, excess paper, etc.), bulky wastes (cardboard, pallets, trees, yard waste, etc.), compostable material (grass, leaves, straw, etc.), scrap tires, and other restrictions. Some facilities may process or bale waste before disposal.

ADDITIONAL WASTE PROHIBITED FOR INERT WASTE LANDFILLS:

GARBAGE AND PUTRESCIBLE WASTE (liable to spoil, decay or become putrid) including discarded food, bagged garbage, paper, packaging, lunch waste, sanitary products, small animal carcasses, and similar waste cannot be mixed with inert waste or the entire load must be managed as municipal waste. These wastes should be placed in plastic bags and collected by a permitted hauler for management at a municipal solid waste landfill or transfer station **(see Links).**

WOOD PALLETS, LUMBER AND VEGETATIVE MATERIAL includes tree limbs, branches, leaves, logs, and plants which may be used as firewood or fuel or shredded to make mulch. Vegetative/tree materials may be separately managed and processed on-site, at a local solid waste facility or appropriate processing site. **Open burning of waste and trade waste is prohibited** as it may create local air quality and safety issues and may violate Clean Air Act provisions. Use a wood recycler **(see Links).**

CONCRETE AND ASPHALT, if properly segregated from other waste, may be recycled at a local processing site or it may be disposed as inert waste **(see Links).**

CARDBOARD, PAPER, PLASTICS, Etc. may be recycled if properly segregated and handled. Super sacks may be recycled if liners and frac materials are removed. Contact a recycling company or broker **(see Links).**

INERT WASTE including Construction and Demolition waste which is properly screened as described above to remove restricted and non-inert waste materials outlined above can be disposed at inert waste landfills. Inert waste includes drywall, lumber, carpet, wood/upholstered furniture (non-metal), clean plastic, non-asbestos insulation (fiberglass, foam, Styrofoam and cellulose), plastic toys, and similar materials that do not readily contaminate water, air or be a food for vectors. Screened inert waste may be managed at approved inert waste facilities, typically at lower cost **(see Links).**

Thank you for your cooperation. Should you have any questions regarding these issues, contact the Department at 701-328-5166. Solid Waste Program: Steve Tillotson

(email stillots@nd.gov); Brad Torgerson (email btorgers@nd.gov); Ted Poppke (email tpoppke@nd.gov) or Jill Nannenga (email jnannenga@nd.gov); Hazardous Waste Program: Curt Erickson (email cerickso@nd.gov); Derek Hall (email dahall@nd.gov).

North Dakota Solid Waste and Recycling Association: www.ndswra.org .

LINKS:

North Dakota Department of Health Solid Waste, Recycling and Hazardous Waste Publications, Applications and Lists, including:

Waste Transportation, Special Waste, Industrial Waste, Hazardous Waste, Antifreeze Recyclers, Scrap Metal Recycling,	Electronic Recyclers, Universal Waste, Used Oil, Mercury/Lighting Recyclers, Infectious/Medical Waste, Scrap Tire Management,	Municipal Solid Waste, Wood Waste Management, Transfer Stations, Concrete and Asphalt, Inert Waste, Recycling Companies.

See: http://www.ndhealth.gov/wm/Publications

SFN 60120 Waste Rejection Report:
http://www.ndhealth.gov/WM/Forms/WasteRejectionReport.pdf

Environmental Incident Report Form:
www.ndhealth.gov/wm/EnvironmentalIncidentReporting.htm

Waste Transporter Information and Permits: www.ndhealth.gov/wm/Transportation.htm

Asbestos Information: www.ndhealth.gov/AQ/IAQ/ASB/

Radioactive Material Information

U.S. EPA – TENORM: http://www.epa.gov/radiation/tenorm/index.html

U.S.EPA oil and gas production waste: http://epa.gov/radiation/tenorm/oilandgas.html

North Dakota Department of Health - NORM: www.ndhealth.gov/AQ/RAD/norm.htm

US EPA Oil & Gas Exempt Waste: epa.gov/osw/nonhaz/industrial/special/oil/oil-gas.pdf

North Dakota Solid Waste and Recycling Association: www.ndswra.org

North Dakota Oil and Gas Division: https://www.dmr.nd.gov/oilgas/

January, 2012

NORTH DAKOTA
DEPARTMENT · HEALTH

WASTE MANAGEMENT GUIDE for OILFIELD EXPLORATION, PRODUCTION and ASSOCIATED COMMERCIAL and INDUSTRIAL ACTIVITIES in NORTH DAKOTA

Solid waste management facilities in North Dakota must operate in compliance with state law, rules and permits as administered by the North Dakota Department of Health, Division of Waste Management (Department). Solid Waste Facilities and Waste Transporters are required to have permits from the Department. Waste generated by Oilfield Exploration and Production activities and associated industrial, service, commercial, and construction activities may pose challenges for solid waste facilities, waste haulers and recyclers. Waste from these sources must be properly managed to meet state law and rules and the requirements for specific solid waste facilities. Properly characterizing, segregating and managing wastes will help stressed solid waste facility staff and help avoid accidents, environmental impacts and waste being rejected by facilities. Repeated problems may result in additional inspection requirements, increased handling and expense, and if necessary, enforcement. Some segregated materials may be recycled.

SPECIAL WASTE: Most waste from crude oil and natural gas exploration and production such as drilling cuttings, water, and similar waste that is not managed at a drill site or injection well but is shipped off-site is classified as "Special Waste." Most special waste is disposed at permitted special or industrial waste facilities if it is properly characterized and managed. Waste from crude oil handling and storage may be processed to recover oil. Permitted Special Waste facilities have procedures approved for management of various materials and can provide guidance to waste generators. Crude Processing plants are regulated by the N.D. Oil and Gas Division.

INDUSTRIAL WASTE AND SPECIAL WASTE is regulated in North Dakota and cannot be disposed or mixed with other waste for disposal without coordination with the solid waste facility. With proper characterization, segregation and handling, some waste may be managed at Municipal Solid Waste or Inert Waste landfills or may be recycled. Careful waste handling is essential to expedite orderly operations, hold down costs, reduce waste, and protect human health. **Poorly separated waste may be subject to additional disposal costs.**

Wastes should be carefully separated into categories described below and properly managed at approved recycling, processing or disposal facilities in accordance with state, federal and local requirements. Keep records on the amount removed from each facility or unit, how it is segregated and eventually managed, recycled or disposed.

LEAD BATTERIES ARE PROHIBITED FROM DISPOSAL in North Dakota landfills and must be segregated for recycling. Lead batteries should not be mixed with other materials and cannot be disposed. Please manage lead batteries carefully to ensure they are not broken.

USED OIL IS PROHIBITED FROM DISPOSAL: Lubricating oil from vehicles and equipment must be recycled. Used oil must be separated in properly labeled containers. Any spillage must be promptly cleaned up.

OIL FILTERS can often be recycled as scrap metal if they are hot drained and either crushed or punctured. Once crushed or punctured and well drained, they may be placed in containers and be

checked to make sure free oil is removed. Some landfills may not accept oil filters from commercial or industrial sources. Work with your local scrap dealer.

RECYCLABLE METALS ARE PROHIBITED FROM DISPOSAL in North Dakota landfills. Separate metals in labeled containers or piles and do not mix with waste. Power equipment, metal parts, ducting, pipes, structural steel, stoves, water heaters, metal furniture, heaters, furnaces, and other metal items can be managed to recover metal. Oil, fuel and fluids may need to be removed from some equipment for proper management. Work with your local scrap metal recycler. Aluminum cans are encouraged to be recycled.

APPLIANCES ARE PROHIBITED FROM DISPOSAL. Freon containing appliances such as refrigerators, freezers, dehumidifiers, air conditioners, must have the refrigerant removed by licensed technicians at a processing site. Handle these carefully to avoid damage to the refrigeration units. Capacitors and other electronic equipment may need to be removed. Remove food from appliances. Remove or secure doors of large appliances.

Waste containers, trucks or waste rolloffs with comingled recyclable metal should not be picked up. Scrap metal in a landfill can damage equipment and cause the facility to be out of compliance. Some piping may contain radioactive materials. North Dakota promotes recycling of valuable scrap metals that is properly handled.

POTENTIALLY RADIOACTIVE WASTE AND TECHNOLOGICALLY ENHANCED RADIOACTIVE MATERIALS (TENORM) The following natural gas and crude oil production and transportation wastes (and wastes that may have been contaminated by such materials) shall not be accepted unless it is analyzed for Naturally Occurring Radio Active Material (NORM), specifically, Ra-226 and Ra-228 concentrations and Lead-210 by a state-approved analytical procedure or screening process, prior to acceptance at this facility:

a. Accumulated materials, including: solids, scale, sediment, production sand, emulsion, sludges, and other tank bottoms from storage facilities, separators, heater treaters, vessels, tanks, and production impoundments that hold product or exempt waste;
b. Pipe scale, hydrocarbon solids, hydrates, and other deposits removed from tubular goods, piping, casing, filters, clean-out traps and other equipment;
c. Pigging wastes from gathering lines;
d. Filter Socks and Proppant from oilfield exploration, production and deep well injection activities; and
e. Any other waste material suspected to contain TENORM or likely to have accumulated NORM or TENORM in concentrations equal to or greater than 5 picoCuries/gram (pCi/gm).

If the total laboratory-measured Ra-226 plus Ra-228 or Lead-210 activities are equal or greater than 5 pCi/gm, the waste will not be allowed for acceptance, treatment or disposal at this facility but shall be rejected. The owner/operator shall note the source, amount, generator and other identifying information of the rejected waste and shall notify the Department within five (5) days of the rejection of such material. To address background radiation, there is no adjustment made for the background of the blending material. The 5 pCi/gm limit is for the waste stream as measured using a Department-approved analytical method and procedures.

HAZARDOUS WASTE AND SIMILAR MATERIALS including, but not limited to: paints, solvents, varnishes, stains, cleaners, degreasers, spot removers and similar ignitable products; aerosol cans, and compressed gas containers or cylinders: ammunition including un-used shells, lead shot, bullets, powde: loading supplies, etc: oils, fluids (transmission , hydraulic, brake etc.); fuels, automotive additives, batteries (including lead, mercury, ni-cd, etc.); acids and bases – often labeled corrosive (store acids separately from bases and do not mix!); toxics, poisons, pesticides (includes insect, rodent and weed killers); antifreeze; fertilizers; and other ignitable, corrosive, reactive, toxic, PCB, problem or unknown wastes must be separated and labeled by waste type and be properly managed. Except for small spills, do not dispose or mix these materials in waste intended for disposal in a permitted landfill. **Do not mix unlike materials.**

UNUSED CHEMICALS, ADDITIVES, UNUSED PRODUCTS, EXCESS RESIDUES AND CONTAINERS: Bulk, bags, buckets or containers of unused products or excess residue, including chemicals, additives, paints, potentially toxic materials, unknowns, or materials that may cause ignition should not be disposed or mixed with other waste materials unless approved by the solid waste facility operators. If unused product cannot be used for the intended purpose, the materials must be properly managed as industrial or hazardous waste.

ELECTRONIC WASTE (E-WASTE) includes monitors, T V.s, computers, stereos, light ballasts, mercury devices (thermostats, mercury switches, fluorescent fixtures and bulbs, mercury bulbs, thermometers, etc.); light ballasts, transformers; circuitry, and similar materials. Please package fluorescent devices and bulbs and other fragile materials to avoid breaking. Electronic waste generally is hazardous and should be recycled.

ASBESTOS CONTAINING MATERIAL may include asbestos pipe wrap, boiler coatings, loose insulation, transite (older cement type siding and electrical backing), vermiculite (light, platy insulating material) and other materials. Please label all bags or containers "Asbestos Waste." REGULATED Asbestos Waste must be disposed at approved solid waste facilities and cannot be disposed with inert waste. See other NDDoH guidance on Asbestos.

GARBAGE AND PUTRESCIBLE WASTE (liable to spoil, decay or become putrid) including discarded food, bagged garbage, paper, packaging, lunch waste, sanitary products, small animal carcasses, and similar waste cannot be mixed with inert waste or the entire load must be managed as municipal waste. These wastes should be placed in plastic bags and collected by a permitted hauler for management at a Municipal Solid Waste Landfill or Transfer Station.

MEDICATIONS AND INFECTIOUS WASTE including pills, medicines, dressings, needles, sharps, human blood or tissue, isolation waste, pathological waste, infectious human or animal waste, etc. may not be mixed with inert waste but may be properly containerized and disposed with other non-regulated infectious waste. Small amounts in labeled containers may be disposed with Municipal Waste (garbage). DO NOT FLUSH OR DISPOSE MEDICATIONS IN A SEWER OR A SEPTIC SYSTEM.

WOOD PALLETS, LUMBER AND VEGETATIVE MATERIAL includes tree limbs, branches, leaves, logs, and plants may be used as firewood or fuel or shredded to make mulch. Vegetative/tree materials may be separately managed and processed on-site, at a local solid waste facility or appropriate processing site. **Open burning of trade waste is prohibited** as it may create local air quality and safety issues and may violate clean air act provisions.

CONCRETE AND ASPHALT if properly segregated from other waste may be recycled at a local processing site or it may be disposed as inert waste.

INERT WASTE including Construction and Demolition waste which is properly screened as described above to remove restricted and non-inert waste materials outlined above can be disposed at inert waste landfills. Inert waste includes drywall, lumber, carpet, wood/upholstered furniture (non-metal), plastic, non-asbestos insulation (fiberglass, foam, styrofoam and cellulose). plastic toys, and similar materials that do not readily contaminate water, air or be a food for vectors. Screened inert waste may be managed at approved inert waste facilities, typically at lower cost.

Thank you for your cooperation. Should you have any questions regarding these issues, please contact Steve Tillotson, Brad Torgerson or Ted Poppke of the North Dakota Department of Health, Division of Waste Management at 701-328-5166.

LINKS:

ND Dept of Health Solid Waste Program Publications and Lists: http://ndhealth.gov/wm/Publications/

US EPA site on Technologically-Enhanced, Naturally-Occurring Radioactive Materials:
http://www.epa.gov/radiation/tenorm/index.html

US EPA site specifically for Oil and Gas Production Waste:
http://www.epa.gov/radiation/tenorm/oilandgas.html

North Dakota Department of Heath site for Naturally Occurring Radioactive Materials:
http://www.ndhealth.gov/aQ/RAD/norm.htm

North Dakota Century Code CHAPTER 23-20.1 IONIZING RADIATION DEVELOPMENT.
http://www.legis.nd.gov/cencode/t23c20-1.pdf

EPA Booklet discussing Oil & Gas Exempt Waste:
http://epa.gov/osw/nonhaz/industrial/special/oil/oil-gas.pdf

ND Dept of Health Asbestos Program: http://ndhealth.gov/AQ/IAQ/ASB/

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Appendix B

Dust Control Plan

WENCK File #2522-16
July 2015

Revised Dust Control Plan

Renewable Resources, LLC, Permit SW-0363
Dunn County, North Dakota

Prepared for:

Renewable Resources LLC

P.O. Box 657
Killdeer, North Dakota
58640

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Prepared by:

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Fax: 701-297-9600

Table of Contents

1.0 Introduction

This plan is the Revised Dust Control Plan for the Renewable Resources LLC (Facility/Site), located north of Killdeer, North Dakota.

The plan's purpose is to establish guidelines and requirements for use by facility personnel in the daily operations of Renewable Resources, as well as maintenance requirements.

This Dust Control Plan is designed to be a flexible document. When operating procedures, contingency actions, waste management procedures, or wastes have significantly changed, the plan will be amended.

2.0 Dust Control Plan

2.1 DUST CONTROL

Dust caused by solid waste treatment operations will be minimized throughout the treatment and storage processes. All reasonable efforts will be made to conduct operations in a manner that does not allow a significant visible film to accumulate on the site and adjacent properties. The waste processing equipment is all located within enclosed structures to prevent contamination and nuisance issues with windblown dust. Appropriate dust control training will be part of the overall site training program for all personnel, so that they are aware of the need for, and importance of, fugitive dust control in all daily operations for purposes of "nuisance control," as well as eliminating the potential spreading of contaminated soils to the environment. Permit requirements for dust control will also be covered in the training program.

Trucks delivering waste will drive into the building, unload the untreated solid waste **only** onto the concrete floor of the storage building, and drive out. Under no circumstances will the untreated waste be unloaded onto the ground outdoors. Similarly all fluid waste trucks will only unload inside the fluids processing buildings.

The soil screener is contained in a separate room to control dust during the screening process after to thermal treatment operations.

Trucks picking up treated soil materials will drive into an enclosed structure underneath the silos to be loaded with the treated soil material. The release of the dust is mitigated by loading the treated soil material in an enclosed structure with a garage door on either end. The garage doors are closed during the loading process. Air in the enclosed structure is circulated through the bag house to further reduce the amount of dust escaping to the outdoors during the loading process. All transport vehicles will be required to be tarped before exiting the building or load-out areas.

During the treatment process, the dust and gases are routed from the drum dryer to the dust collector or "bag house." The bag house filters the dust out of the air, and the filtered air is further processed in the vapor recovery system to recover process freshwater or crude oil. This process is covered by a separate air permit with the NDDH (PTC15010 and PTC15013). Additional information is available in stack test data submitted to the NDDH Air Quality Department as part of the required testing.

The interior of all solid waste containing structures will be swept weekly, at a minimum, to remove any collections of fugitive dust. The dust will then be mixed with untreated solid waste and re-processed.

In the event that waste, or treated byproducts, is spilled or tracked outside of the facility's structures, it will be cleaned up immediately and the area appropriately decontaminated.

Road dust caused by traffic at the site will be controlled by watering access roads when necessary. Water will be applied to the active roads during operating hours as required by weather, traffic, and road conditions. Unpaved roads will be watered if excessive dusting is encountered. The water application rate will be adjusted dependent on weather conditions. Haul roads will be graded as required and new road material will be applied as needed.

Renewable Resources will also maintain established vegetation to an extent possible as an operating practice to assist with minimizing wind erosion in inactive areas of the site.

Waste will be cleaned from vehicles during the unloading process inside the building to prevent any waste tracking off-site. Cattle guards are proposed to be installed along all building concrete aprons, as well as the Site entrance and exit to help control waste tracking at the facility.

2.2 INSPECTIONS

The Site operators will perform daily visible emissions checks during operating daylight hours at the site. If visible dust emissions are observed, the conditions will be investigated and appropriate corrective action taken. Observation of visible emissions does not in and of itself demonstrate noncompliance with any applicable requirements, but is a signal to trigger further investigation, and if necessary, reasonable and appropriate action.

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Appendix C

Weekly Inspection Form

Weekly Facility Inspection

Renewable Resources, LLC **Dates Covered in Report:**
Solid Waste Management Permit No. 0363

Completed by: **Date Report Completed:**

Waste Processing

Summary of Waste Accepted/Treated

Total Solid Waste accepted:	tons	Total Liquid Waste accepted:	bbls
Total Solid Waste treated:	tons	Total Liquid Waste treated:	bbls

Rejected Waste:

Was any waste rejected? ☐ Yes ☐ No Reason:

(attach reports if applicable)

Progress on treatment and removal of stockpiled waste:

How many waste storage containers are remaining outside?

Waste Processing:

Were there any mechanical/weather issues that changed the rate of material processing? ☐ Yes ☐ No

Date Range:

Reason for change:

Efforts to monitor and prevent a “back-up” of unprocessed material:

Waste Handling:

Is any waste extending outside of the building from the entrance or open areas?	☐ Yes	☐ No	Location:

Waste Storage:

Is all waste outside of storage building stored in approved containers?	☐ Yes	☐ No	If no, reason:
Is each container covered?	☐ Yes	☐ No	Location:
Is there any evidence of material escaping from the containers?	☐ Yes	☐ No	Location:

Equipment and Storage

Processing Equipment:

Solids:

Drum Dryer is in good condition?	☐ Yes	☐ No	If no, planned repairs:
Oxidizer is in good condition?	☐ Yes	☐ No	If no, planned repairs:
Baghouse is in good condition?	☐ Yes	☐ No	If no, planned repairs:

Liquids:

Are tanks in good condition?	☐ Yes	☐ No	If no, planned repairs:
Is solid separating equipment in good condition?	☐ Yes	☐ No	If no, planned repairs:
Is filtering equipment in good condition?	☐ Yes	☐ No	If no, planned repairs:
Have filter socks been removed from site?	☐ Yes	☐ No	If no, reason:

Storage Building:

Is the roof in good condition?	☐ Yes	☐ No	Location
Is the siding in good condition?	☐ Yes	☐ No	Location:
Are the building supports in good condition?	☐ Yes	☐ No	Location:
Is the concrete in and around the building in good condition?	☐ Yes	☐ No	Location:

General Site Activities

Is standing water present?	☐ Yes	☐ No	Location:
Have there been any spills?	☐ Yes	☐ No	Location:
Is visual contamination present?	☐ Yes	☐ No	Location:
Has windblown treated waste dust been observed?	☐ Yes	☐ No	Location:
Was there any unauthorized access?	☐ Yes	☐ No	By:
Construction activity?	☐ Yes	☐ No	Location:

Other:

Security and Access:

Are buildings secured?	☐ Yes	☐ No
Are the access roads in good condition?	☐ Yes	☐ No
Is the fence in good condition?	☐ Yes	☐ No

Foreseeable changes in the facility which may require a permit modification:

Status of site training and education programs:

Appendix D

Monthly Report Form

Monthly Facility Report

Renewable Resources, LLC **Dates Covered in Report:**
Solid Waste Management Permit No. 0363

Completed by: **Date Report Completed:**

Progress made regarding settlement terms since last report:

- **Item 1**
- **Item 2**
- **Item 3**

Waste Processing

Summary of Waste Accepted/Treated

Total Solid Waste accepted:	tons	Total Liquid Waste accepted:	bbls
Total Solid Waste treated:	tons	Total Liquid Waste treated:	bbls

Accepted Waste Intake:

Drill Cuttings

Company Name/ Source of Waste	Location Origination	Description/Type	Waste Received (Tons)	Date	Invoice #

Renewable Resources, LLC
Monthly Facility Report

Fluid Waste

Company Name/ Source of Waste	Location Origination	Description/Type	Waste Received (BBLs)	Date	Invoice #

Rejected Waste:

Was any waste rejected? ☐ Yes ☐ No Reason:

(attach reports if applicable)

Progress on treatment and removal of stockpiled waste:

How many waste storage containers are remaining outside?

Waste Processing:

Were there any mechanical/weather issues that changed the rate of material processing? ☐ Yes ☐ No

Date Range:

Reason for change:

Efforts to monitor and prevent a "back-up" of unprocessed material:

Waste Handling:

Is any waste extending outside of the building from the entrance or open areas?	☐ Yes	☐ No	Location:

Waste Storage:

Is all waste outside of storage building stored in approved containers?	☐ Yes	☐ No	If no, reason:
Is each container covered?	☐ Yes	☐ No	Location:
Is there any evidence of material escaping from the containers?	☐ Yes	☐ No	Location:

Equipment and Storage

Processing Equipment:

Solids:

Drum Dryer is in good condition?	☐ Yes	☐ No	If no, planned repairs:
Oxidizer is in good condition?	☐ Yes	☐ No	If no, planned repairs:
Baghouse is in good condition?	☐ Yes	☐ No	If no, planned repairs:

Liquids:

Are tanks in good condition?	☐ Yes	☐ No	If no, planned repairs:
Is solid separating equipment in good condition?	☐ Yes	☐ No	If no, planned repairs:
Is filtering equipment in good condition?	☐ Yes	☐ No	If no, planned repairs:
Have filter socks been removed from site?	☐ Yes	☐ No	If no, reason:

Storage Building:

Is the roof in good condition?	☐ Yes	☐ No	Location
Is the siding in good condition?	☐ Yes	☐ No	Location:
Are the building supports in good condition?	☐ Yes	☐ No	Location:
Is the concrete in and around the building in good condition?	☐ Yes	☐ No	Location:

General Site Activities

Is standing water present?	☐ Yes	☐ No	Location:
Have there been any spills?	☐ Yes	☐ No	Location:
Is visual contamination present?	☐ Yes	☐ No	Location:
Has windblown treated waste dust been observed?	☐ Yes	☐ No	Location:
Was there any unauthorized access?	☐ Yes	☐ No	By:
Construction activity?	☐ Yes	☐ No	Location:

Other:

Security and Access:

Are buildings secured?	☐ Yes	☐ No
Are the access roads in good condition?	☐ Yes	☐ No
Is the fence in good condition?	☐ Yes	☐ No

Foreseeable changes in the facility which may require a permit modification:

Status of site training and education programs:

Photos (see attached):

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Attachment 3

TENORM Radiation Safety Management Plan

WENCK File #2522-10
August 2015

Technologically Enhanced Naturally Occurring Radioactive Material (TENORM) Radiation Safety Management Plan

Prepared for:

Renewable Resources, LLC

P.O. Box 657
Killdeer, North Dakota
58640

WENCK ASSOCIATES

Responsive partner.
Exceptional outcomes.

Prepared by:

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Table of Contents

Table of Contents (Cont.)

TABLES

APPENDICES

1.0 Purpose

This purpose of this document is to establish minimum requirements and expectations for handling and management of Technologically Enhanced Naturally Occurring Radioactive Material (TENORM) and to ensure that all reasonable precautions will be taken to protect workers who are, or might be, required to work with TENORM.

This practice provides guidelines to ensure employees and workers are fully knowledgeable of the correct procedures to be followed for worker protection, that the environment is protected from potential contamination and that TENORM impacted materials are managed within all applicable waste regulations.

2.0 Scope

This practice applies to all Renewable Resources, LLC employees, contract employees, contractors and other visiting personnel conducting work on Renewable Resources, LLC premises and worksites.

This Safety Management Plan follows the Conference of Radiation Control Program Directors Suggested State Regulations for Control of Radiation (SSRCR): Part N- "Regulation and Licensing of Technologically Enhanced Naturally Occurring Radioactive Materials (TENORM)" and sets the minimum standards for TENORM management including the following key elements:

- Management control over work practices including supervisory requirements to ensure Radiation Protection (RP) procedures are developed and implemented;
- Personnel qualifications and training;
- Control of occupational and public exposure to radiation;
- External gamma radiation monitoring and protection;
- Contamination monitoring and control;
- Environmental controls; and
- Waste management controls.

In conjunction, the TENORM Safety Management Plan outlines the appropriate record-keeping requirements of the above elements as follows:

- Dose Assessments;
- Training records;
- Screening, contamination and radiation surveys;
- Environmental monitoring; and
- Waste management tracking, transport and manifest documentation.

3.0 Administration

The management of Renewable Resources, LLC administers this Safety Management Plan to ensure that:

- TENORM screening surveys are prioritized and conducted as required to identify potential TENORM management issues.
- The TENORM Safety Management Plan is implemented in each operating area where TENORM has been identified during screening surveys.
- All personnel (employees or subcontractors) required to work with or potentially exposed to TENORM understand the Safety Management Plan requirements and have received appropriate training in TENORM radiation protection.
- Identify and support resources needed in each area to oversee and control all TENORM radiation safety and TENORM waste management requirements. This team may consist of trained and experienced employees and/or a network of contractors who specialize in TENORM Management on an as-needed basis. The EH&S Team will consist of a designated TENORM Radiation Safety Officer (RSO), TENORM Supervisors and on-site TENORM Technicians.
- Updates to the TENORM Safety Management Plan are completed as required.

4.0 Training

Training and awareness are a major part of a TENORM management program. The core knowledge requirements and training for personnel includes the following:

TENORM Workers

Workers need to be provided with TENORM awareness training which includes the following topics:

- Sources of TENORM radioactive contamination;
- Hazards of radiation and the necessary controls to mitigate;
- The risks associated with radiation to which the worker may be exposed in the course of his or her work;
- Comparisons to other radiation sources personnel are exposed to everyday;
- Safe work procedures including selection of TENORM-specific Personal Protective Equipment (PPE), respiratory protection requirements and use of radioactive contamination control zones and personnel decontamination procedures; and
- Emergency Response.

TENORM Technicians

All TENORM worker training, plus the following:

- Survey instruments;
- TENORM regulatory requirements including the applicable radiation dose limits for incidentally and occupationally exposed workers;
- Survey documentation;
- Sampling operations;
- Air sampling;
- Types of laboratory analysis;
- Area posting and signage requirements;
- Radiation monitoring procedures before working with TENORM-impacted equipment or waste including managing control areas and fixed and removable contamination surveys; and
- A practical session involving the actual survey for TENORM.

TENORM Supervisor

All TENORM worker and TENORM technician training, plus the following:

- Waste management handling and storage procedures;
- Surveying plans and schedules;
- Record-keeping requirements including documentation of dose exposure levels;
- Shipping and transportation of radioactive materials, including Class 7 TDG training;
- The Annual Limit on Intake (ALI) and Derived Working Limits (DWL);
- Disposal options and management of TENORM-impacted waste and equipment; and
- Liability minimization.

TENORM Radiation Safety Officer (RSO)

All TENORM worker, technician and supervisor training, plus the following:

- Formal RSO training and certification that includes;
  - Workplace inspections and audits;
  - Biological and health effects of radiation exposure;
  - Radiation detection, instrumentation and calibration;
  - Transport of radioactive materials;
  - Regulatory agencies and standard-setting organizations; and
  - Licensing of nuclear substances and radiation devices.
- Detailed knowledge and practical abilities necessary to implement and monitor a Radiation Protection Program;
- A thorough review and understanding of all applicable federal, state and company regulatory requirements; and
- Extensive practical experience with TENORM surveying, worker radiation protection and risk communication.

5.0 TENORM Formation

Technologically Enhanced Naturally Occurring Radioactive Material (TENORM) has been recognized as a potential hazard in industries that produce our natural resources. These include oil and gas, mining, refractory brick and ceramics manufacture, fertilizer, water treatment, and power generation industries.

The origin of TENORM in the oil and gas industry is primarily through the concentration of Radium (Ra226 or Ra228) associated with produced water production, and Lead (Pb210) associated with natural gas production. These radionuclides are daughters of uranium and thorium which are incorporated in the Earth's crust, and form part of the earth's natural background radiation.

Generally, TENORM materials exist in low concentrations in rock formations and generally pose little radiological concern. However, as part of industrial activities such as oil and gas production, TENORM radionuclides can be transported to the surface and concentrated to levels that may pose a hazard to human health and the environment. For example, barium or calcium scale precipitated from oil recovery brine may concentrate radium to much greater concentrations than the original produced water source itself.

While there is potential to exceed allowable external radiation doses as a result of larger accumulated volumes and concentration of TENORM, in most cases, the radiological concern to workers is from the inhalation or ingestion of TENORM materials. TENORM hazards are easily mitigated and controlled by implementing TENORM safe work procedures. As a result, special precautions are needed for handling, storing, transporting, and disposal of material, by-products, end-products or process equipment containing TENORM.

6.0 Radiation Hazards

Two types of radiation hazards may be encountered: external hazards and internal hazards. The difference is whether the hazard is outside the body (an external hazard), or inside the body as the result of inhalation or ingestion of radioactive material (an internal hazard).

6.1 EXTERNAL RADIATION HAZARD

External radiation exposure occurs when personnel are exposed to gamma radiation from sources outside the body. **Typically, external TENORM radiation hazards in the oil and gas industry are extremely low.** Although, generally not necessary, external radiation doses can be controlled by applying the radiation control principles of time, distance and shielding.

Operations will be conducted so that individual members of the public and incidental workers will not exceed an exposure of 1 milliSievert (mSv) (100 millirems (mrem)) Total Effective Dose Equivalent (TEDE) annually.

6.2 INTERNAL RADIATION HAZARD

Internal radiation exposure occurs when TENORM gets into the body and is of far greater concern than external radiation exposure. Some radioactive isotopes may not be eliminated from the body for several decades and a very large cumulative dose may build up as a result.

Internal contamination is prevented by avoiding the inhalation or ingestion of radioactive materials.

- Inhalation is a common route of entry. All feasible measures must be taken to prevent TENORM particles from becoming airborne. Industrial operations, such as welding, grinding or cutting can create an inhalation hazard. Possible controls include using water to prevent materials becoming airborne, using engineered ventilation controls, utilization of HEPA air filtration units, good housekeeping, and closure of emission points. If the dust cannot be controlled through these measures, workers must use respiratory protection. A properly fit-tested half-mask respirator will also eliminate the potential for inhalation.
- Ingestion of TENORM may occur when contaminants are deposited on clothing, PPE, or equipment and then transferred into the body. Possible controls include the use of disposable PPE and setting up control areas where workers are surveyed for contamination prior to leaving the control area. A half-mask respirator will also eliminate the potential for ingestion. Good housekeeping, personal hygiene, restrictions on eating, drinking and smoking in workplace areas where contamination may be present will further reduce the risk.

7.0 Worker Protection & Exposure Control

7.1 ALARA PRINCIPLE

The basic philosophy of worker protection from all radioactive materials, including TENORM, is to maintain all exposures "As Low as Reasonably Achievable" (ALARA). In other words, if it is practical to avoid unnecessary exposures to above normal background levels, that is the preferred objective.

In addition to the principle of ALARA, maximum TENORM exposure or dose limits to workers and members of the public have been developed as outlined in Section 11.2. The maximum allowable dose limit for members of the public and incidentally exposed workers is 1.0 mSv/a (100 mrem) Total Effective Dose Equivalent (TEDE).

7.2 RADIATION EXPOSURE LIMITS

Doses to members of the public and workers must be estimated by conducting a radiation survey of the work place/worksite. The survey should include evaluations of both gamma dose-rates and air borne radioactivity as required.

Workers with estimated doses in excess of 1.0 mSv/a (100 mrem) are classified as occupationally-exposed workers. Any dose levels above 0.3 mSv/a (30 mrem) will require a dose assessment and radiochemical analysis of TENORM-impacted materials if TENORM is present.

Occupation Health and Safety Regulations require monitoring and exposure control plans if workers are potentially subject to elevated radiation levels. Estimates of the effective dose to workers and the public must consider the following exposure pathways:

- External gamma exposure.
- Ingestion of TENORM-containing materials.
- Inhalation of TENORM-containing dust.
- Inhalation of radon gas and its radioactive decay products.

Table 7-1 outlines radiation exposure limits for different types of workers and the public. These limits are in addition to natural background exposures, and include both internal exposures and external exposure pathways.

Incidentally exposed workers are employees whose regular duties do not include exposure to TENORM sources of radiation. They are considered members of the public who work in an occupational exposure environment.

The occupational dose to individual adults shall be controlled to the following dose limits:

i. An annual limit, which is the more limiting of:
(1) The total effective dose equivalent being equal to 0.05 Sievert (5 rem); or (2) The sum of the deep dose equivalent and the committed dose equivalent to any individual organ or tissue, other than the lens of the eye, being equal to 0.5 Sievert (50 rem).

ii. The annual limits to the lens of the eye, to the skin, and to the extremities which are:

(1) A lens dose equivalent of 0.15 Sievert (15 rem);

(2) A shallow dose equivalent of 0.5 Sievert (50 rem) to the skin or to any extremity.

The annual occupational dose limits for minors are 10 percent of the annual occupational dose limits specified for adult workers. The occupational exposure of a declared pregnant woman must not exceed 5 millisievert (0.5 rem).

Table 7-1: Radiation Dose Limits

Affected Group	*Annual Limit*
Occupationally TEDE Limits for Adults	50 mSv (5 rem)
Incidentally Exposed Workers & General Public	1 mSv (100 mrem)

7.3 DERIVED WORKING LIMITS (DWLS)

Derived Working Limits (DWLs) have been determined from the annual radiation dose limits to assist in dose assessments. The DWL's provide an estimate of dose that can be directly measured in the workplace. Table 7-2 outlines the incremental gamma radiation dose rate in the workplace for each classification group and the steps required to maintain a high level of health and safety for the workers and the public.

Table 7-2: Derived Working Limits – Gamma Dose Rate Thresholds

TENORM CLASSIFICATION	*THRESHOLD DOSE mSv/a*	*DERIVED WORKING LIMIT -*	*THRESHOLD REQUIREMENTS*
Investigation Threshold	< 0.3 mSv/a	<150 nSv/hr for 2,000 exposure	- Public and worker access unrestricted.
TENORM Management Threshold	> 0.3 mSv/a to 1.0 mSv/a	>150 nSv/hr for 2,000 exposure hours per annum	- Public access restricted and incidentally exposed worker access unrestricted. - Implement TENORM Safe Work Practices.

Dose Management Threshold	> 1.0 mSv/a to 5.0 mSv/a	>500 nSv/hr for 2,000 exposure hours per annum	- Occupational worker access only - Registration of workers with an approved radiation dosimetry program.
Radiation Protection Management Threshold	>5.0 mSv/a to 20 mSv/a	>2,500 nSv/hr for 2,000 exposure hours per annum	- Introduce a formal radiation protection program. - Ensure that workers do not exceed a five-year average occupational effective dose of 20 mSv/a

Notes: nSv/hr = nanosieverts/hour
mSv/a = millisieverts/annum

7.4 ACTION LEVELS

In order to maintain doses ALARA, site-specific action levels and administrative control levels must be implemented based on the anticipated hazards and the projected worker dose estimates. These levels must be set such that protective measures are initiated so as to maintain worker doses below the projected doses and well below the limits outlined in Section 7.2.

To ensure that the public and incidentally exposed workers do not exceed the annual dose limit of 1 mSv, the International Commission on Radiation Protection (ICRP) and the International Atomic Energy Association (IAEA) suggest the use of a dose constraint. A dose constraint allows for exposures from other sources without the annual limit being exceeded. ICRP suggests that for the control of public exposure an appropriate value for the dose constraint is 0.3 mSv in a year. In keeping with this suggestion, 0.3 mSv/a is the action limit at which TENORM safe work procedures are implemented.

8.0 Worker Dose Mitigation

The mechanisms for worker dose commitment are via external gamma radiation, inhalation of radioactive dust during work activities, and, to a lesser extent, inadvertent ingestion of TENORM. The following procedures will be implemented to mitigate worker exposure levels.

- To the extent practical, process or other engineering controls, such as, containment, decontamination or ventilation will be used to control the concentrations of radioactive material in air;
- When it is not practicable to apply process or other engineering controls to control the concentrations of radioactive material in air to values below those that define an airborne radioactivity area, a control area must be created in the immediate area where work on TENORM-contaminated materials is performed. Signs shall be erected around the perimeter of the contaminated work area to notify personnel of the TENORM hazard and to restrict access to unauthorized personnel;
- All personnel who may come into contact with TENORM contamination must wear appropriate PPE and be advised of the hazards associated with the TENORM-contaminated materials;
- Seal open ends of pipes or equipment with plastic, welded plates, or, at a minimum, duct tape, to prevent undue spreading of TENORM;
- Spread ground covers (heavy duty tarpaulins, drip trays, etc.) to capture TENORM-contaminated materials when there is a likelihood of contaminating the ground;
- Where possible, keep material damp, but not wet, to prevent dust generation while minimizing the volume of contaminated wastewater;
- Contaminated gloves, respirators, coveralls, boots, cleaning rags and tools shall have surface contamination surveys conducted and shall be decontaminated as necessary prior to disposal. If decontamination on site is not possible, the material must be sealed, labeled, and sent to a licensed decontamination facility. All contaminated equipment or material must be properly contained and sealed for storage or disposal;
- TENORM-contaminated waste shall be placed in storage bins that are suitable to contain all TENORM waste, such as metal waste boxes, filter bins or heavy gauge polyurethane hazmat drums. All containers should be placed in a suitable monitored and secure TENORM storage area. The container shall be tagged with TENORM warning labels, contents, origin, date, dose rates and activity levels if possible;
- Eating, drinking, chewing, and smoking is not permitted in TENORM-contaminated areas; and
- All personnel must be surveyed for TENORM contamination prior to leaving the TENORM controlled work area. Personnel shall observe good personal hygiene and wash face and hands to prevent any possible ingestion of TENORM- contaminated material.

8.1 PERSONAL PROTECTIVE EQUIPMENT

Inhalation can deliver most of the radiation dose in many TENORM work environments. Respirators equipped with cartridges approved for radionuclide dust must be worn whenever there is the potential to come in contact with TENORM. A high protection factor can only be obtained if there is an effective respirator selection, service and fitting program.

Air sampling, as directed by the Radiation Safety Officer, must be completed to identify the potential hazard, permit proper equipment selection, and estimate doses if there is potential for airborne contamination.

The cartridges used must be High Efficiency Particulate Air (HEPA) P100 cartridges. These cartridges are typically color-coded magenta. These cartridges are only to be used as a minimum; some situations may require a positive-pressure breathing apparatus. If additional hazards exist with the waste being handled, respirators with dual cartridges may be required.

It is not necessary to dispose of masks if they are clean and in good condition. Masks shall not be shared for hygiene reasons.

All respiratory equipment must comply with the Company's fit-testing program.

Wear protective boots, gloves and disposable coveralls to minimize contact with TENORM-contaminated material or equipment. Whenever possible use easily washable or disposable PPE.

Modifications to the PPE requirements may be made by the RSO or TENORM Supervisor depending on local conditions. For example, if the material being excavated is found to be wet and poses no airborne hazard – and no airborne radioactivity is detected in field monitoring – the requirement for the P-100 mask may be waived.

A radiation technician shall be available to assist with the proper donning and doffing of PPE, provide contamination monitoring and ensure everyone entering the area has the appropriate dosimeters (i.e., electronic or TLD badge) if required.

8.2 CONTAMINATION CONTROL AREAS

Of primary importance in the prevention and spread of contamination is the delineation and maintenance of defined, secure working limits. Work involving the handling of TENORM shall be confined to areas designated as Contamination Control Areas (control areas). These control areas will be delineated and access to and egress from the areas will be restricted and controlled.

The TENORM Supervisor and TENORM Technician will ensure that tracking through the area is prevented, and shall control traffic by means of prescribed access points, and by ensuring all employees working in a controlled area have received appropriate instructions about the nature of the radiation hazard in the area.

Workers leaving the Controlled Area will be monitored for contamination. Equipment within the Controlled Areas will be cleaned prior to leaving the area. Equipment will subsequently be monitored by a TENORM Technician for unrestricted release after cleaning.

PPE must be removed in the control area if it is found to have any surface contamination on it above background levels. If contamination is below 1 Bq/cm^2 (200 CPM using a Ludlum 44-9 pancake probe or equivalent), and loose contamination removed, it can then be bagged and disposed of as regular oilfield waste.

If the PPE is found to have contamination over 200 CPM, then it must be contained in hazmat drums or suitable containment device for decontamination or TENORM waste disposal. All equipment must be decontaminated prior to removal from the control area, or sealed and sent to a licensed decontamination and/or disposal facility.

Records of the results of the contamination monitoring of the contamination area must be kept by the TENORM Supervisor.

8.3 PERSONAL HYGIENE

The transfer and ultimate ingestion pathway of TENORM is one of the hardest to control. All personnel who come into contact with TENORM-contaminated materials must complete personal frisking with a Ludlum 44-9 pancake probe and implement good hygiene practices.

The following procedure may be used for decontamination of skin. Continue with each step of the procedure until no contamination is detected:

- Monitor skin carefully to determine contamination level and location;
- Wash with tepid soap and water. Leave soap lather on for two to three minutes before rinsing. Re-monitor; do not use harsh cleansers or abrasive techniques for washing;
- Wash skin with a mild detergent. Scrub carefully with a soft bristly brush, soap, and water. Stop if skin reddens. Re-monitor;
- If contamination persists, consult the on-site TENORM Technician or TENORM Supervisor staff. The removed material (along with any wash water) will be placed into a container and will be labeled, inventoried and deposited into the onsite TENORM waste storage area; and
- The normal PPE required during active cleanup work will include disposable clothing such as Tyvek® suits and gloves. Disposable clothing will be removed prior to leaving the control area, and bagged for disposal in the closest onsite waste storage area.

8.4 Personnel Dosimetry Requirements

A licensed dosimetry service will be used to measure the radiation doses to occupationally exposed workers who have a reasonable probability of receiving an effective dose greater than 1 mSv in a one-year dosimetry period. **Typically, this is not expected to be a requirement.**

If required, TLD badges (and associated control dosimeters) will be kept in an area at background radiation levels and not the area of active work. All workers engaged in TENORM activities will be supplied with a personal TLD badge clearly identified (for example, with the person's name) and will be required to wear these daily. Workers must pick up their TLDs from the designated rack at the beginning of each day and wear it at all times.

At the end of each day, workers must return their badges to the designated rack. Several non- labeled badges will be available for visitors and additional personnel. Generally, visitors

would not be required to wear badges unless required by the TENORM Supervisor. If a badge is to be used on a continuing basis by a worker, they will be assigned their own TLD. The reporting period for the TLDs is quarterly.

Each quarter, the TLDs will be replaced with new ones and those which have been worn, the controls, and any unused TLDs will be returned by management to the licensed dosimetry company for measurement. Workers will be notified of their accumulated doses once the results have been received (these are typically posted in a readily accessible area to all workers, such as the lunch room).

Workers are not to share or trade TLDs. Electronic Personal Dosimeters (EPDs) will be worn by certain workers designated by the TENORM Supervisor (for example, when beginning intrusive work into materials known to contain radioactive material, the EPD may be used to measure daily doses). The EPD will be given to the worker in each team that is likely to receive the highest dose in a certain activity as determined by the TENORM Supervisor. The worker may change depending on the activity that day. The EPDs will be read and recorded at the time interval determined by the TENORM Supervisor.

Workers will be provided with appropriate dosimeters at the beginning of each day. It is the responsibility of the workers to:

- Ensure the TLD is worn on their upper or mid-body (inside a pocket or under their outer clothing) at all times while working. This ensures that the TLD measures the gamma radiation exposure of the individual and protects the TLD (from loss or contamination);
- Ensure TLDs are returned to the proper rack at the end of each day or prior to leaving the site; and
- EPDs are worn by designated workers at the same location as the TLD and that the EPD is returned at the end of the day or when leaving the site. The TENORM Supervisor or designate will record readings at the time interval specified.

A lost or missing TLD is to be reported immediately to the TENORM Supervisor and RSO and a replacement will be provided as quickly as possible.

The results of radiation field surveys, the recorded TLD dose from a co-worker engaged in similar activities and any EPD monitoring results will be used to estimate a maximum probable dose received by the worker during the time period the lost TLD was worn. This will be included in the record along with a note indicating that this is an estimate.

Dose from dust inhalation will be estimated from air monitoring results as required. This average concentration will be used with the time spent in the area, the worker inhalation rate, and the appropriate dose conversion coefficients to determine the dose received from inhalation. Implementation of good work practices (such as washing hands and face when exiting works areas and before eating and drinking) will eliminate the ingestion pathway.

The inhalation dose is added to the external dose to determine the total dose received by each worker.

The RSO will investigate within 30 days the cause of any personnel exposure that is anomalous or which exceeds the applicable administrative control level. If warranted, the RSO will take corrective actions to ensure that unnecessary exposures are halted and

recurrence is prevented. A report of each investigation and the actions taken, if any, will be recorded and maintained for inspection purposes.

If an action limit is exceeded, the RSO will:

- Conduct an investigation to establish the cause for reaching the action level;
- Identify and take action to restore the effectiveness of the implemented radiation protection program; and
- Notify senior management.

If appropriate, an ALARA review will be performed.

If a regulatory dose limit is exceeded, the following will be performed:

- Immediate notification of the person and the State Authority of the dose;
- Removal of the person from any work that is likely to add to the dose;
- Conduct an investigation to determine the magnitude of the dose and to establish the causes of the exposure;
- Identify and take any action required to prevent the occurrence of a similar incident; and
- Immediately report the results of the investigation to the appropriate government authority, or on the progress that has been made in conducting the investigation.

9.0 Radiation Monitoring Equipment

Gamma survey meters, typically Sodium Iodide (NaI) scintillation types, will be used for monitoring gamma radiation fields. The exact type and make will be determined by the Radiation Safety Officer (RSO) prior to the commencement of any TENORM work and the personnel using the instrumentation will be provided appropriate training.

Contamination meters sensitive to alpha and beta contamination (likely a Geiger Mueller (GM) pancake type) will be used for routine contamination control activities.

Dust samples and measurement of radon gas and airborne long-lived radioactive dust (LLRD) will be completed as required and directed by the RSO. A constraint on air emissions of radioactive material to the environment, excluding Radon-222 and its daughters, shall be established such that the individual member of the public likely to receive the highest dose will not be expected to receive a total effective dose equivalent in excess of 0.1 millisievert (10 mrem) per year from these emissions.

All instruments must be calibrated annually or according to the manufacturer's specification and tested by check source prior to use.

Note: Most radiation survey equipment is not intrinsically safe. An appropriate safe work permit and gas check will be required prior to conducting radiation surveys.

10.0 TENORM Surveys

10.1 TENORM SURVEY REQUIREMENTS

Only personnel who are adequately trained in the hazards of TENORM and the calibration, testing, and use of radiation monitoring equipment will conduct testing for TENORM.

The testing equipment must be a radiation survey meter capable of operating in either rate meter or scalar mode, with the ability to accurately measure gamma radiation dose rates in nano-sieverts per hour (nSv/hr) or equivalent and contamination levels in counts per minute (CPM). The survey meter should have both a gamma scintillation probe and pancake GM contamination probe. A Ludlum 3-97 with 44-9 pancake probe or equivalent is recommended.

Testing equipment must be calibrated annually or according to the manufacturer's specifications.

In addition to testing the equipment's regular calibration, the survey meter must be checked against a known source before each survey to ensure the equipment is in proper working order.

All survey data should be recorded. Background levels have to be determined before each survey to ensure monitoring results are comparable to previous surveys.

10.2 TENORM GAMMA RADIATION SURVEYS

Monitoring equipment that can detect gamma radiation must be used and the results should be recorded as a dose rate in uSv/hr or nSv/hr.

If monitoring propane, ethane or NGL systems where radon contamination is suspected, the equipment must have been running for at least two hours before monitoring begins. This will allow the short-lived gamma ray-producing radon daughters to be generated, and therefore allow gamma rays to be measured. Approximately 85% of the gamma rays produced by radon daughters are from the short-lived isotopes.

Lead-210 has a low-energy gamma ray and can only be reliably detected by conducting a surface contamination survey. Detection of radon gas within a sealed vessel only indicates the potential of Lead-210 buildup. The buildup or concentration of sufficient particles above the unrestricted release criteria is dependent on residency times and flows.

Dose rate measurements taken on the outside surfaces of suspected equipment shall be considered as potentially TENORM-contaminated if the dose rate exceeds the normal background radiation levels. A sample must be taken for laboratory analysis to determine if the waste meets or exceeds unconditional release limits.

Dose rate measurements should be taken within 1cm of the equipment walls at locations where TENORM scale or sludges are suspected to build up (typically at the vessel's

bottom). Consideration should be given to equipment wall thickness and the distance the survey meter is from the suspected TENORM contamination.

Derived Working Limits must also be determined on all equipment identified with elevated gamma signatures. A dose rate must be obtained for the typical work area around the identified equipment for this calculation.

10.3 TENORM CONTAMINATION SURVEYS

When surface dose rates measured on the equipment's outside surfaces exceed background levels, worker protection requirements must be specified in relation to surface contact, airborne particulate, and vessel entry. This monitoring should be conducted by suitably qualified and trained personnel.

Monitoring equipment that can detect surface contamination levels including gamma rays and alpha and beta particles shall be used during internal inspections.

Average fixed-surface contaminated equipment or PPE intended for release to third parties or sent for disposal must meet the unrestricted release criteria of 5,000 disintegrations per minute (dpm)/100 cm^2 (0.83 Bq/cm^2 averaged over 100 cm^2). This is equivalent to 166 CPM for a Ludlum 3-97 scintillation detector with a 44-9 GM pancake probe.

Equipment with removable contamination must be cleaned prior to release to levels less than 1,000 dpm/100 cm^2 (0.16 Bq/cm^2 averaged over 100 cm^2).

11.0 Regulatory

This plan is subject to the following regulatory requirements:

11.1 FEDERAL

Wastes containing technologically enhanced naturally occurring radioactive materials (TENORM) are generally not regulated by federal agencies. However, one area in which TENORM-containing wastes are regulated at the federal level is transportation.

TENORM-containing wastes that have a specific activity greater than 2,000 pCi/g (70 Bq/g) are subject to the U.S. Department of Transportation (DOT) regulations governing transport of radioactive materials. These regulations are contained in the Code of Federal Regulations, Title 49, Chapter 1, Part 173, Subpart I, "Class 7 (Radioactive) Materials," § 173.401 - 173.476.

In addition, TENORM management activities may be subject to regulations promulgated by the Occupational Safety & Health Administration (OSHA).

11.1.1 North Dakota

TENORM-Specific Regulations:
None -- subject to the general radiation control regulations as outlined in the North Dakota Administrative Code, Article 33-10, "North Dakota Radiological Health Rules."

12.0 TENORM Waste Management

The management of TENORM wastes encompasses all aspects of initial characterization, handling, storage, transportation, processing, treatment, and disposal practices from the point of generation to the final disposition.

This practice provides recommendations based on the radiological properties of TENORM. In determining an acceptable material management option, other hazardous properties such as chemical toxicity must be considered. In some cases, the non-radiological hazardous properties of TENORM materials are the critical selection criteria for the preferred TENORM material management option.

This practice outlines Unconditional Derived Release Limits (UDRL) for diffuse and discrete TENORM wastes. All TENORM impacted materials above UDRL limits must be stored in a designated and signed TENORM storage area in appropriate containers until the TENORM Supervisor arranges for transfer to a licensed disposal site.

12.1 DIFFUSE TENORM SOURCES

Table 12–1: Unconditional Derived Release Limits (UDRL's) Diffuse TENORM Sources

North Dakota	*SOLID (pCi/g)*
NORM/TENORM RADIONUCLIDE	5

12.2 DISCRETE TENORM SOURCES

Limits for surface contamination on equipment, tools and scrap surfaces intended for unconditional release are listed in Table 12-2. These limits are applicable to fixed surface contamination. Loose surface contamination must be completely removed or all accessible surfaces cleaned prior to release to levels less than 1,000 dpm/100 cm^2 (0.16 Bq/cm^2 averaged over 100 cm^2).

Table 12-2: Unconditional Derived Release Limits (UDRL's) Discrete TENORM Sources

Property	*Limit*
Dose Rate (metal	0.5 µSv/h
Fixed Surface Contamination	0.83 Bq/cm^2 averaged over a 100 cm^2

Labeling Of TENORM Impacted Equipment

All equipment identified as TENORM-contaminated by testing for TENORM on the equipment's outside surfaces, shall be tagged or labeled as:

This equipment may contain "Technologically Enhanced Naturally Occurring Radioactive Material – TENORM" – Avoid Breathing Dusts

Special precautions are required before the equipment is opened for repair, maintenance or inspection.

12.3 STORAGE OF TENORM IMPACTED MATERIALS

Outdoor storage areas should have appropriate security fencing, positioned such that the annual exposure to members of the public does not exceed 0.3 mSv/a at the perimeter. Access to the storage area should be restricted and work practices established so that the annual exposure to incidentally exposed workers does not exceed 1.0 mSv/a. In addition, TENORM impacted materials must be stored under the following requirements:

- Containers and equipment in storage containing TENORM shall be stored in a fenced, signed, monitored and secure area with limited access;
- TENORM materials should be stored on a sealed and diked pad;
- Provisions must be in place for secondary containment (e.g., an impervious barrier or liner) where liquid TENORM wastes are being stored;
- Wherever possible, materials with higher radiation levels should be stored near the center of the area to reduce radiation levels at the storage area perimeter.
- Containers and equipment containing TENORM material must be recorded and secured against unauthorized removal from the storage area;
- An accurate inventory of materials must be maintained including originating location, date, activity levels and package contents. Dose levels within the storage area must be recorded monthly and inspections shall be performed to identify leaking or corroded containers, which must be immediately repacked or sealed;
- Loose TENORM such as scale and sludge shall be stored in sealed and marked heavy gauge polyurethane Hazmat containers on pallets or racks. Larger volumes may be stored in specially designed 19 m^3 roll-off bins prior to disposal;
- All openings on stored equipment or tubing containing TENORM shall be capped, plugged or wrapped in plastic to prevent the spread of TENORM;
- TENORM-contaminated PPE, rags, etc. should be placed into heavy gauge polyurethane Hazmat containers;
- Personnel who enter TENORM storage areas shall be informed of the presence of radioactive materials, the safety hazards associated with the material and the methods of controlling exposures;
- The boundary and all entrances to TENORM storage areas shall be identified with a sign bearing the three-bladed trefoil radiation symbol and the words "CAUTION, TENORM RADIOACTIVE MATERIAL STORAGE AREA." If the storage area has a dose rate of greater than 5,000 nSv/hr, employees must contact their supervisor for a review of the area; and
- Records shall be maintained to document at least the following information:
    - Generator information – location, address and contact.
    - Container identification code.
    - The storage location.
    - Type of material in storage (scale, sludge, PPE, etc.).
    - The date the material entered storage.
    - The original location of material or equipment and type of service.
    - Measurement data that reflects the radioactivity of each container (gamma dose in nSv/hour and activity in Bq/g).

12.4 SAMPLING PROCEDURES

The purpose of this sampling procedure is to provide a safe and documented standard for preparing and shipping Naturally Occurring Radioactive Material (TENORM) samples for laboratory analysis. The use of proper personal protective equipment (PPE) should be used while taking samples, to prevent inhalation or ingestion of TENORM-contaminated materials.

A TENORM survey meter is essential at the time of sampling in order to take a representative TENORM sample and to record the external radiation dosage levels of the sample for shipping and laboratory purposes.

In general, TENORM sampling should be conducted as part of an overall TENORM survey conducted by qualified personnel. This will ensure that subsequent laboratory analysis is meaningful and will provide the most value in regards to having an integrated approach for handling any potential TENORM contamination problems.

- TENORM samples must be put into strong plastic containers (i.e., Nalgene Sample Bottles) with screw-on lids. The lids should be sealed shut with duct tape after filling. Do not use glass bottles.
- The recommended minimum quantity for solid sample analysis is 200 grams
- (150 ml). The recommended minimum quantity for a liquid sample is 1.0 liters.
- TENORM samples of limited quantities are shipped as exempted packages under transport regulations. Consequently, samples may be shipped using regular parcel post provided the samples are properly labeled and packaged.
- All TENORM samples should be properly labeled with company name, location, contact name and phone number, description of contents, source dose rate and sample dose rate.
- A Warning label should be attached to the sample container which states the following: "Warning – Naturally Occurring Radioactive Material" "Avoid Breathing Dust."
- Samples should be packaged so as to prevent the escape of odors or the package contents. No warning signs are to be put on the exterior of the package.

12.5 TRANSPORT OF TENORM

The transport of oilfield TENORM, with radioactivity below 70 Bq/g, is not subject to federal transportation regulations and falls under the jurisdiction of each state regulator.

Prior to shipment, the TENORM material must be assessed to determine the activity concentration.

All TENORM shipments, even if not subject to Federal Transport Requirements, are still required to have a manifest shipped with the TENORM-contaminated materials. The manifest must contain the descriptor **"Technologically Enhanced Naturally Occurring Radioactive Material – TENORM."** Do not affix radioactive placards or labels on the transport vehicle or on the exterior surfaces of the packaging.

Equipment with TENORM should be appropriately contained to prevent the release of radioactive material during transportation. All openings where potential TENORM contamination could escape must be sealed prior to transport; heavy polyurethane and duct tape is usually sufficient. The objective is to seal the TENORM contamination within

equipment ensuring that there are no leaks or spills during the loading, transport or unloading of the TENORM-contaminated items. Tubing and piping should have pipe protectors installed or the ends sealed. The shipment should also be tarped to provide secondary containment and in case the ends get knocked off during loading or transport.

All packaged equipment and containers should be labeled with the wording **"Warning—Technologically Enhanced Naturally Occurring Radioactive Materials (TENORM), Avoid Breathing Dust"** and marked such that the contents and/or contamination levels are readily identifiable from the outside. This prevents unnecessary handling and opening of packages for identification at a later date and is a prudent worker safety measure.

Shipments of oilfield TENORM (Ra226, Ra228 and Pb210) with activity above 70 Bq/g fall under the federal jurisdiction, and are therefore subject to the requirements of federal regulations, including U.S. Department of Transportation (DOT) regulations.

All personnel are to obtain approval from the corporate Radiation Safety Officer prior to shipping materials that fall under federal jurisdiction.

12.6 DISPOSAL

As noted above, most provinces and states have established specific regulatory programs that define what materials must be managed as regulated TENORM and sent to appropriate TENORM-licensed decontamination or disposal facilities.

TENORM impacted equipment including tubing, wellheads, casing, pumps, vessels, heat exchangers, pipeline inspection tools and other miscellaneous items must be cleaned for unrestricted release at a TENORM-licensed decontamination facility. Bulk diffuse TENORM waste material is collected and sent for licensed TENORM disposal.

Diffuse TENORM waste disposal options currently allowed in several jurisdictions include burial at licensed TENORM landfills or a low-level radioactive waste (LLRW) disposal facility, and underground injection into a subsurface salt cavern or TENORM-licensed disposal well.

All decontamination and disposal of TENORM waste must be coordinated through the corporate RSO to ensure complete permitting, regulatory approval, documentation and supervision for the transportation and disposal of TENORM-contaminated wastes and equipment.

Disposal options for TENORM waste must be reviewed and approved by Senior Management.

13.0 Emergency Response and Spills

13.1 EMERGENCY RESPONSE

First priority is human life and ensuring employees are alright and their health and safety are secure. **TENORM does not pose a significant short-term health risk.** As a result, all emergency response plans must address immediate health and safety concerns as a first priority.

13.2 ENVIRONMENTAL CONTROL MEASURES

TENORM spills should be prevented where possible by using appropriate drip trays, tarps, sealing equipment openings, and secondary containment. If a spill occurs, the site must be secured and company personnel and regulatory authorities notified as appropriate. If safe to do so, all reasonable attempts should be made to control and contain the spill. Hazard assessment and implementation of safety controls must be implemented including establishment of control areas and documented site safety meetings.

TENORM related spills should be cleaned up by personnel trained in TENORM safe work procedures and under the supervision of the TENORM Supervisor. All appropriate safe work procedures and personal protective equipment must be worn as outlined in this TENORM Safety Management Plan.

For small spills, hazmat drums or polyethylene containers can be used to collect the waste. Larger spills may require sealed roll-off containers. All containers and waste materials must be appropriately inventoried and labeled prior to being sent for TENORM storage or disposal. TENORM impacted areas will need to be confirmed cleaned through TENORM radiation surveys and/or radiological sampling.

14.0 Definitions

Activity (Radioactivity): The number of nuclear transformations that occur in a quantity of material per unit of time. Unit: Becquerel (Bq), 1 Bq = 1 disintegration per second.

ALARA: A principle of risk management according to which exposures are kept "As Low As Reasonably Achievable," economic and social factors being taken into consideration. ALARA is a guiding principle of radiation protection.

Alpha Radiation (Alpha Decay): A high-energy positively charged particle ejected from the nucleus of an unstable (radioactive) atom, consisting of two protons and two neutrons. An alpha particle is a helium nucleus.

Annual Limit on Intake (ALI): The intake by inhalation, ingestion or through the skin of a given radionuclide in a year by a reference man, which would result in a committed dose equal to the relevant dose limit. The ALI is expressed in units of activity (Bq).

Atomic Number: The number of protons contained in the nucleus of an atom. This number gives each atom its distinct chemical identity.

Atomic Mass (Mass Number): The total mass of protons and neutrons contained in the nucleus of an atom.

Background Radiation: The radiation to which an individual is exposed arising from natural radiation sources such as terrestrial radiation from radionuclides in the soil, cosmic radiation from space, and naturally occurring radionuclides deposited in the body from foods, etc.

Becquerel (Bq): An SI unit of radioactivity, equivalent to 1 nuclear transformation per second. Used as a measurement of the quantity of a radionuclide, since the number of radioactive transformations (disintegrations) is directly proportional to the number of atoms of the radionuclide present. Replaces an earlier unit, the curie (Ci).

Beta Radiation (Beta Decay): The ejection of a high-energy negatively charged subatomic particle from the nucleus of an unstable atom. A beta particle is identical in mass and charge to an electron.

Contamination (Radioactive Contamination): Radioactive material present in excess of natural background quantities in a place it is not wanted.

Committed Dose: The total dose received from a radioactive substance in the body during the remainder of a person's life (assumed as 50 years for adults, 70 years for children) following the intake of the radionuclide.

Controlled Area: A work area where;

- Access is limited to those persons who are required to work, or perform any duty in the area.

- The boundaries of the area are clearly delineated and are made known to employees.
- Any person entering the area has received appropriate instructions about the nature of the radiation hazards in the area.

Decay (Radioactive Decay): A process followed by an unstable nucleus to gain stability, by the release of energy in the form of particles and/or electromagnetic radiation. TENORM materials decay with the release of alpha particles, beta particles and/or gamma photons.

Decay Series (Radioactive Decay Series): A succession of radionuclides, each member of which transforms by radioactive decay into the next member until a stable nuclide results. The first member is called the "parent," the intermediate members are called "progeny" and
the final stable member is called the "end product." In the two TENORM decay series; uranium-238 and thorium-232 are the "parents," and lead-206 and lead-208 are the "end products."

Derived Working Limit (DWL): A practical working limit derived from regulatory limits. Derived Working Limits can be compared to measured values at the work site to assess compliance with regulatory limits.

Diffuse TENORM: TENORM-contaminated material in which the radioactive concentration is uniformly dispersed. It is generally low in radioactive concentration, and relatively large in volume.

Discrete TENORM: TENORM-contaminated material in which radioactive substances are concentrated or not uniformly dispersed throughout the material.

Dose Constraint: An upper bound on the annual dose that members of the public or incidentally exposed workers should receive from a planned operation or single source.

Dosimeter: A device for measuring a dose of radiation that is worn or carried by an individual.

Equilibrium (Radioactive): In a radioactive decay series, the state that prevails when the rate at which progeny are produced is equal to the rate at which they are decaying. This form of equilibrium may be attained only if the precursor is very long-lived relative to any member of the decay chain. All members of a TENORM radioactive decay series in equilibrium have the same radioactivity.

Gamma Radiation (Gamma Rays or Gamma Photons): Electromagnetic radiation or photon energy emitted from an unstable nucleus in the process of ridding itself of excess energy. Highly penetrating, gamma rays lose energy as they pass through atoms of matter.

Half-life, Radioactive: The time required for a radioactive material to lose half of its activity through radio-active decay.

IAEA: International Atomic Energy Agency.

ICRP: International Commission on Radiological Protection.

Incidentally Exposed Workers: Employees whose regular duties are not expected to result in exposure to TENORM radiation. The public annual dose limit of 1 mSv applies to this category of workers in an occupational exposure environment – the occupational domain.

NORM (Naturally Occurring Radioactive Materials): NORM is an acronym for "naturally occurring radioactive materials" comprising radioactive elements found in the environment. Long-lived radioactive elements of interest include uranium, thorium and potassium and any of their respective radioactive decay products, such as radium and radon. Some of these elements have always been present in the earth's crust and within the tissues of all living beings. Although the concentration of NORM in most natural substances is low, higher concentrations may arise as the result of human activities.

One-year Dosimetry Period: The period of one calendar year beginning on January 1 of the year following the year in which the Radiation Protection Management Program is started, and every period of one calendar year thereafter.

Occupationally Exposed Workers (TENORM Workers): Employees who expect to receive exposure to sources of TENORM radiation as a result of their regular duties. The annual occupational dose limit of 20 mSv applies to this category of workers in an occupational exposure environment.

Personal Dosimetry Threshold: The annual effective dose above which radiation dosimetry of individual workers is required.

Radiochemical Analysis: Analysis of the radioactive content of a TENORM sample. Radiochemical analysis will identify and quantify the concentration of various radionuclides in the TENORM sample.

Radionuclide or Radioisotope: A particular form of an element, characterized by a specific atomic mass and atomic number, whose atomic nucleus is unstable and decays or disintegrates with a statistical probability characterized by its physical half-life.

Radium-226: A radioactive element with a half-life of 1600 years. It is a particularly hazardous decay product of natural uranium, and is frequently the dominant TENORM nuclide. It decays into the radioactive gas, Radon-222.

Radon: The only radioactive gas generated during natural radioactive decay processes. Two radioisotopes of radon are present – radon and thoron – each a decay product of radium. Radon (Rn-222) is found in the uranium decay series, while thoron (Rn-220) is found in the thorium decay series.

Radon Progeny: The products of radon (radon-222) or thoron (radon-220) decay with short half-lives. Radon decay products include; Polonium-218 (RaA), Lead-214 (RaB), Bismuth-
214 (RaC), and Polonium-214 (RaC'). Thoron decay products include; Polonium-216 (ThA), Lead-212 (ThB), Bismuth-212 (ThC), Polonium-212 (ThC'), and Thallium-208 (ThC").

Rem: A historical unit of human dose equivalent. Rem is an acronym for roentgen equivalent man and was replaced in 1977 by the Sievert in the international system of units.

Roentgen (R): The classical unit of radiation ionization in air, frequently misapplied as a unit of exposure in humans. Replaced in international system of units by the "Coulomb per kg in air."

Shielding: The reduction of radiation beam intensity by interposing, between the source and an object or person that might be exposed, a substance that absorbs the radiation.

SI (International System of Units): The "metric" system of units generally based on the meter/kilogram/second units. Special quantities for radiation include the becquerel, gray and sievert.

Sievert (Sv): The sievert is the unit of radiation equivalent dose, H, that is used for radiation protection purposes, for engineering design criteria and for legal and administrative purposes. The sievert is the SI unit of absorbed radiation dose in living organisms modified by radiation type and tissue weighting factors. The unit of dose for the terms "equivalent dose" and "effective dose." It replaces the classical radiation unit, the rem. Multiples of sieverts (Sv) used in the Guidelines include millisieverts (mSv) and microsieverts (uSv).

Specific Activity (Radioactive Concentration): The number of Becquerel's per unit of mass of a material. Units: Bq/g and kBq/kg.

Technologically Enhanced Naturally Occurring Radioactive Material (TENORM): Naturally occurring radioactive material whose radionuclide concentrations are increased by or as a result of past or present human practices. TENORM does not include background radiation or the natural radioactivity of rocks or soils. TENORM does not include "source material" and "byproduct material" as both are defined in the Atomic Energy Act of 1954, as amended (AEA 42 USC §2011 et seq.) and relevant regulations implemented by the NRC.

Total Effective Dose Equivalent (TEDE): The sum of effective dose equivalent from external exposure and committed effective dose equivalent from internal exposure, thereby taking into account all known exposures.

15.0 References

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International Basic Safety Standard for the Protection against Ionizing Radiation and for the Safety of Radiation Sources, IAEA Safety Series No. 115, Vienna, 1996.

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Waste Management Technical Committee, “Technical Report on the Management of Naturally Occurring Radioactive Material (NORM) in Waste,” July 2009.

Appendix A

State Contracts and Regulatory Agencies

Appendix A: State Contacts and Regulatory Agencies

State Government Agencies

North Dakota

Oil and Gas Agency
North Dakota Industrial Commission
Department of Mineral Resources
Oil and Gas Division
600 East Boulevard Ave., Dept. 405
Bismarck, ND 58505-0840
Phone: (701) 328-8020

Radiation Control Agency Division of Air Quality Radiation Control Program
918 East Divide Avenue, 2nd Floor
Bismarck, ND 58501-1947
Phone: (701) 328-5188

Waste Transportation
Division of Waste Management
Solid Waste Program
918 East Divide Avenue, 3rd Floor
Bismarck, ND 58501-1947
Phone: (701) 328-5166

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MINNESOTA
Maple Plain
763-479-4200
Golden Valley
763-252-6800
Windom
507-831-2703
New Hope
800-368-8831
Woodbury
651-294-4580

COLORADO
Denver
602-370-7420

GEORGIA
Roswell
678-987-5840

NORTH DAKOTA
Fargo
701-297-9600
Mandan
701-751-3370
Dickinson
800-472-2232

SOUTH DAKOTA
Pierre
605-222-1826

WYOMING
Cheyenne
307-634-7848
Sheridan
307-675-1148

Attachment 4

Emergency Response Plan

WENCK File #2522-0010
August 2015

Emergency Response Plan

Renewable Resources, LLC
Dunn County, North Dakota

Prepared for:

Renewable Resources, LLC

P.O. Box 657
Killdeer, North Dakota
58640

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Table of Contents

1.0 Plan Overview

1.1 INTRODUCTION

The primary objective of this Emergency Response Plan (Plan) is to clearly define the framework and tools that will facilitate the ability of Renewable Resources, LLC (Renewable Resources) to respond to emergency incidents.

The Plan is designed to ensure that:

- Renewable Resources is fully prepared for all types of incidents that may occur;
- A consistent framework for response is developed and communicated that will allow for the effective identification and response capabilities to assist in managing an emergency incident; and,
- Clear roles and responsibilities for emergency response and emergency management preparedness activities are developed and communicated across the company.

1.2 SCOPE

The Plan recognizes that the primary responsibility for preventing, planning, and responding to all incidents lies with the site's Facility Manager, and through him, the Renewable Resources Radiation Safety Officer (RSO). In the event of a serious incident or emergency, the Facility Manager will call on company resources, support, and response management assistance.

1.3 RESPONSE PRINCIPLES

The following are Renewable Resources response principles for all incidents and emergencies:

- Place the highest priority on human health and safety;
- The second response priority is protecting the environment and the community;
- Assess hazards and respond quickly and safely;
- Apply the highest quality/intensity of technical and operational efforts to control the problem and normalize conditions;
- Provide early and appropriate media and stakeholder communication with NDDH authorities and county authorities by being accessible and by reaching out in a timely manner with facts and concern;
- Uphold commitments to ethical behavior by communicating in an honest and forthright manner; and
- Protect the reputation of Renewable Resources – sincerity, honesty and integrity of the company should be maintained.

1.4 EMERGENCY PREPAREDNESS STRATEGY

1.4.1 Facility Manager/Owner

The Facility Manager is responsible for:

- Understanding and communicating their support for and commitment to the programs defined in the Emergency Response Plan;
- Participating actively and visibly in training, drills and simulation exercises;
- Ensuring that emergency preparedness activities are consistent with the Plan;
- Participating as required on the Emergency Management Support Team;
- Ensuring that advisory resources are dispatched to the scene if required or necessary; and
- Ensuring that moving company personnel and resources to support the actual response to any serious incident or emergency is done effectively.

1.4.2 Radiation Safety Officer (RSO)

The RSO is responsible for:

- Developing and maintaining oversight and coordination of the core sections of the Emergency Response Plan;
- Overseeing the coordination, training, and proficiency of the emergency response teams;
- Assessing Renewable Resources preparedness and any response effort for serious incidents;
- Developing the Emergency Response Support Team notification and mobilization process;
- Site-specific emergency response plan sections are developed for all operations with the level of detail commensurate with the risk;
- Site-specific emergency response plan sections are reviewed no less than once per calendar year, or more frequently as required;
- Training and resources are provided to ensure the successful implementation of the site-specific emergency response plans;
- Actively and visibly participating in training, drills and exercises;
- Response readiness is validated through scheduled exercises and reviews of actual response efforts;
- Feedback is provided to the Facility Manager regarding the effectiveness of the core sections of the site-specific emergency response plan; and
- Employees and contractors are prepared to take prompt action in order to protect human life, the environment and property.

1.4.3 Emergency Response Team

There are two essential response team positions that need to be covered on a continuous basis – Incident Commander and the on-site Supervisor.

The on-site Supervisor is the senior Renewable Resources representative responsible for the actual site operation at the time the emergency occurs. Typically, the on-site Supervisor function will attempt to be filled by the Facility Manager. This person is responsible for all on-site control and containment operations. These operations will be directed towards mitigating the emergency or protecting human life, health, property and the environment from the physical impact of an event.

The on-site Supervisor is responsible for all on-site personnel and closely coordinates with the Incident Commander.

The Incident Commander, usually filled by the Radiation Safety Officer (RSO), is responsible for the field emergency response activities and notifications. As leader of the Emergency Response Team, the Incident Commander is in charge of overall field-based incident management, mobilizing staff to respond, notifying the Facility Manager of the situation and taking action to ensure the health and safety of personnel and the public.

Effective management of an emergency incorporates the full range of all activities undertaken by the Incident Commander and the Emergency Response Team.

1.4.4 Emergency Response Team – Incident Command Functions

Incident Commander – The individual assigned as the Incident Commander (i.e., the RSO or his designee) has the responsibility for all Emergency Response Team functions. This person may decide to perform all functions or delegate authority to perform functions to other personnel. Delegation does not relieve the Incident Commander from the overall responsibility.

The Incident Commander is responsible for all incident activities. Based on the nature and potential impacts, the Incident Commander may appoint additional functions, with one person filling more than one function or one person filling each field-response functions, such as:

Safety Officer – responsible for assessing hazardous and unsafe conditions and develops measures for assuring personnel safety.

Liaison Officer – notifies and is the point of contact for any assisting or cooperating agencies.

Logistics Officer – collection, evaluation and display of incident information, maintaining status of resources and preparing the Incident Action Plan and incident documentation.

The Incident Command System is capable of handling both small and large incidents, easily expanding and demobilizing based on the needs and complexity of the incident and the resources available. The Incident Commander should be aware when a situation is growing or becoming more complex, and may require more resources. Potential to impact the nearby public or the arrival of media or government agency representatives is always a good indication of increasing complexity.

1.4.5 Emergency Response Support Team (ERST)

For Renewable Resources, the single point leader of the Emergency Response Support Team is the Facility Manager (or designate). The Facility Manager provides advice and support to the Incident Commander based on the nature of the emergency and makes the decision whether or not to mobilize the ERST.

While continuing to provide advice and required support to the Incident Commander, the ERST evaluates potential short and longer-term impacts and threats to Renewable Resources.

The primary responsibilities of the ERST are to:

- Provide advice and required support to the Incident Commander and the field based Emergency Response Team;
- Initiate or facilitate the mobilization of needed or requested resources to the affected site;
- Evaluate and manage potential impacts and threats to Renewable Resources;
- Ensure efficient and coordinated communications between the Incident Commander and the rest of the team;
- Identify and manage real or potential issues affecting Renewable Resources and provide emergency management support tasks from the Killdeer office; and
- Notify the appropriate State and County authorities of the progress and mitigation of the incident.

1.5 EMERGENCY RESPONSE FACILITIES

1.5.1 Incident Site

This is the physical site of the release, spill, fire, etc. If not already at this location, an on-site Supervisor will be dispatched, and will manage all control and/or containment activities, reporting to the Incident Commander.

1.5.2 Incident Command Post (location of the Incident Commander)

All incidents should have a designated location for the Incident Command Post. There is always one Incident Command Post for each incident. The initial location for the Incident Command Post should consider the nature of the incident, whether it is growing or moving, and whether the Incident Command Post location should be suitable in size and safe for the expected duration of the incident. The Incident Commander has the freedom to manage the incident from wherever it is best to do so. The Incident Command Post is typically a pre-designated room in the facility office.

1.5.3 Staging Area

A Staging Area is a temporary location that is set up near an incident where personnel and equipment are kept while awaiting tactical assignments. Staging Areas should be set up within five minutes travel time to the area of expected need.

1.5.4 Resident Contact List

A Resident Contact List should be established in case of emergencies. The list must be updated annually to ensure accuracy of information.

2.0 Incident Classification

2.1 INCIDENT CRITERIA

All incidents are classified as either an *Alert* or an *Emergency*. Incidents that can be handled on site through normal operating procedures are typically defined as an Alert, while those with a more complex resolution are usually defined as Emergencies.

Incident Classification / Action Plans

Level 1: Potential Emergency

- There is no immediate danger to public or environment;
- Release of hazardous substance is confined to the company property;
- Low potential for it to escalate;
- Handled by company personnel; and
- No immediate threat to workers.

Action Plan

- Alert all facility personnel;
- Evaluate problem and initiate appropriate remedial action; and
- Unnecessary personnel to leave the site.

Level 2: Emergency

- There is a potential for risk to the public or environment, as the emergency could extend beyond company property;
- Control of hazardous substance is still possible; and
- May require the involvement of external emergency services, federal, state or local agencies.

Action Plan

- Ensure all level 1 actions are taking place;
- Initiate evacuation of emergency planning zone (EPZ);
- Set up blocks to isolate the EPZ;
- Establish communication links to appropriate authorities for handling of the emergency, including NDDH and/or NDIC.

2.2 MANAGEMENT NOTIFICATION THRESHOLD

Each On-site supervisor shall provide notification to the Facility Manager as soon as possible after the occurrence of any incident that meets the notification threshold criteria.

The notification criteria are as follows:

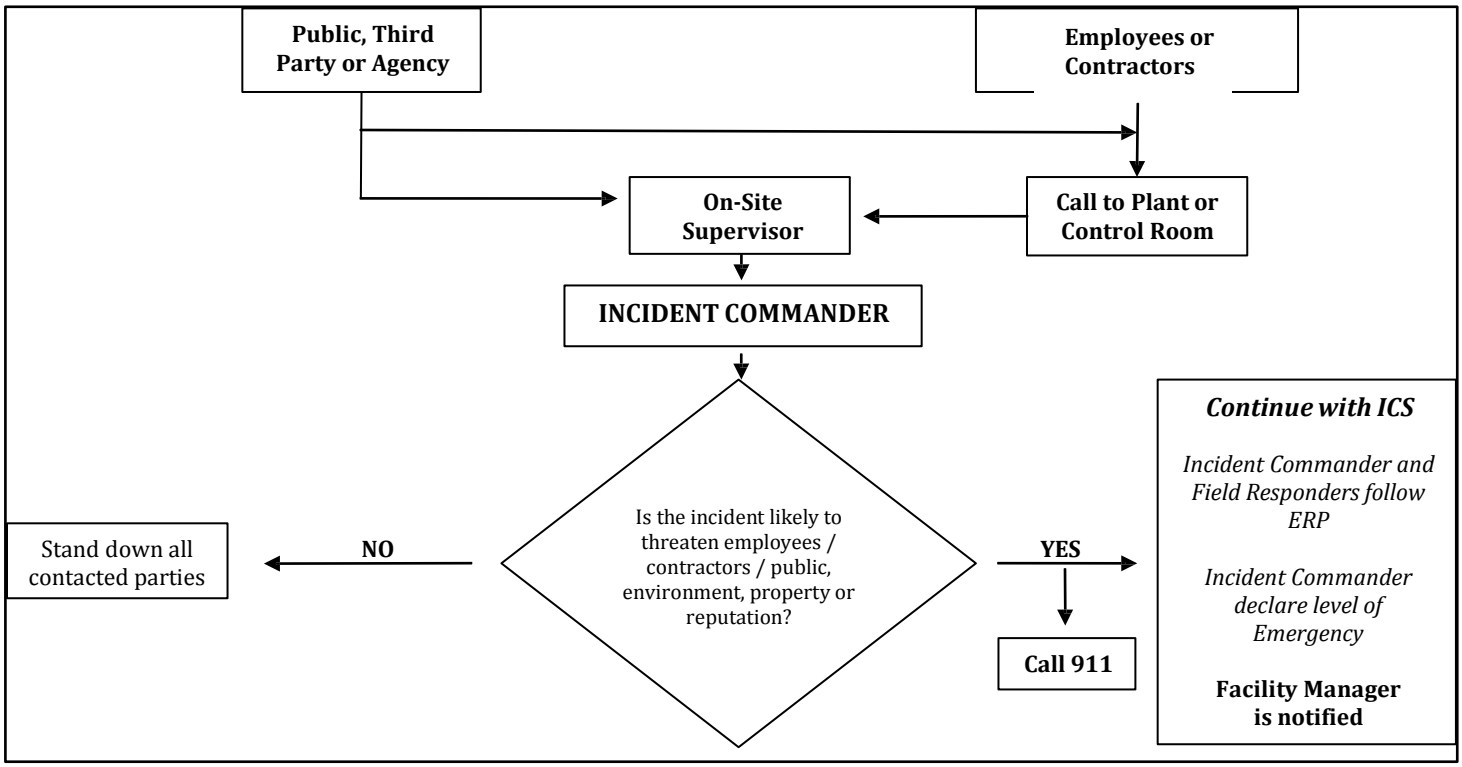
- An incident involving company personnel, contractor employees, and/or the public;
- Spill or release that trigger regulatory reporting/notification requirements;
- An incident that requires evacuation of company employees or contractor personnel beyond the facility; and
- Public complaints made to government agencies and/or complaints made directly to the Facility Managers.

3.0 Notification Activation

The first warning of a potential emergency might come from outside sources such as members of the public, other industrial operators, or government agencies. Regardless of where the notification originates, following through the Initial Notification Flowchart prompts mobilization of personnel to fill the two primary Emergency Response Team functions: the Incident Commander and On-site Supervisor.

All initial information received should be recorded on an "Incident Report Form." Operations staff shall initiate procedures to investigate all reports (made by the public or external agency) of an incident with the possibility to impact company operations. This will ensure that appropriate response actions are implemented. Once the reported problem has been investigated, Renewable Resources should call back the original external caller, regarding the results of the investigation and response.

Table 3-1: Initial Notification Flowchart



4.0 Roles and Responsibilities

4.1 INCIDENT COMMANDER

1. Notification / Assessment

- Clarify information/record data and assess the situation;
- Appoint or dispatch an On-site Supervisor;
- Assess risk to health and safety (workers / public);
- Classify Emergency Level and ensure that defined response notification and actions are undertaken; and
- Notify the Facility Manager of ANY declared Emergency Level.

2. Develop Initial Response Strategy

- Maintain communications with the emergency response personnel;
- Only if health and safety is assured, direct facility operators to take immediate action to gain control, shut down, isolate, or contain incident following safe work procedures;
- Resist the urge to do all tasks: Appoint other response functions and delegate responsibilities;
- As required, to notify government agencies;
- As required, appoint Health and Safety Coordinator to handle all off-site public safety issues;
- Establish your Incident Command Post and lines of communication (brief personnel);
- Ensure that safety procedures are adhered to and that adequate documentation is being maintained; and
- Assume duties/responsibilities that you have not assigned to other personnel.

3. Assess Situation

- Re-evaluate actual / potential risk (employees and public, environment, business impact, reputation impact);
- Raise or lower Emergency Levels as situation dictates and ensure that Emergency Level is communicated; and
- Identify required resources; do not wait until the situation escalates to order resources.

4. Incident Action Plan

- Identify and prioritize critical issues with emergency response personnel;
- Approve/implement an Incident Action Plan;
- Conduct regular briefings with response team, clarify status then re-clarify action plans;
- Maintain command and control of overall incident response;
- Regularly update the Facility Manager and obtain his / her strategic advice and support;
- Evaluate the need for and request additional resources;
- Continually evaluate situation and Emergency Level; and
- Ensure that personnel are relieved as required (including Incident Commander).

5. Transfer of Command (as required)

The Transfer of Incident Command briefing should be face to face and include the following:

- Situation Status;
- Objectives and Priorities;
- Current ICS Organization (Emergency Response Team and key Killdeer contacts);
- Resource Assignments and Resources in route and/or ordered;
- Facilities established (field and office);
- Communications Plan; and
- MAKE SURE ALL PERSONNEL ARE AWARE OF ANY TRANSFER OF COMMAND.

6. Demobilize and downgrade response efforts (when appropriate)

- Stand down the response by giving the "all clear" to lead personnel on the response team and ensure they communicate "all clear" to all personnel involved internally / externally.

4.2 ON-SITE SUPERVISOR

Responsibilities

1. First Response Safety

A. If On-Site:

- Protect yourself – get away from any hazardous area;
- Sound alarm/Call for help;
- Block access to the area and Assess Hazards;
- Assign Site Health and Safety Coordinator (backup/safety watch);
- If health and safety is assured, take immediate actions to gain control, shut down, isolate, or contain incident following safe work procedures;
- Initiate rescue operations (if safe to do so):
    - Don personal protective equipment
    - Administer first aid / medical aid
    - Confirm emergency services have been dispatched
    - Call police/ambulance as needed
- Report details and resources needed to Incident Commander.

B. If dispatched to the incident site:

- Contact backup operator;
- Proceed with caution;
- Approach from an upwind or crosswind direction;
- As required, check for hazards;
- Assume danger, resist the urge to rush in;
- Inspect the site from a distance; and
- Maintain communications with Incident Commander.

Tasks

1. Secure the Area

- Conduct roll call (head count) and account for all on-site personnel;
- Mobilize additional personnel / resources contact directly or request from Incident Commander;
- Isolate / cordon off the hazardous area;
- Establish barriers / roadblocks using all available resources;
- If there is an accident, tape-off or barricade accident location to prevent tampering or disturbing scene;
- Advise other responders of safe route of entry;
- Release non-essential personnel from site - Limit the number of personnel at incident site or near hazard to only the personnel directly involved in response operations; and
- Maintain close communications with Incident Commander.
  Note: *If any serious injuries have occurred, ensure that the accident scene remains undisturbed if possible, until there is a thorough investigation*

2. Assess Situation

- Identify hazards, e.g.: Fire/explosion, toxicity, radiation, oxygen deficiency, ignition sources, access/egress;
- Evaluate actual and the potential risk – "What can go wrong?";
- Reassess and re-confirm the extent of the hazardous area; and
- Do not risk the lives of responders.

3. On-Site Action Plan

- Maintain regular communication with Incident Commander;
- With the Incident Commander, define and prioritize critical issues;
- Conduct meeting with key or on-site staff, review action plan, assess on-site communications and safety;
- Maintain control of all on-site operations;
- Allow the appropriate amount of time to develop a clear and safe Action Plan;
- Verbally test on-site action plans before implementing;
- Implement on-site Action Plan;
- Continually re-assess situation and risk to life;
- Evaluate the need for additional resources and request additional resources from Incident Commander; and
- Give an "all clear" signal to on-site staff when safe to do so.

4.3 RADIATION SAFETY OFFICER (RSO)

Responsibilities

- Respond to direct requests from the Emergency Response Support Team, and the Incident Commander, to ensure that they have all of the resources necessary to adequately support the incident's safety and health requirements;
- Access resources (internal and external) to provide timely and accurate analyses of Health, Safety and Human Resource issues;
- Responsible for all aspects of health and safety for others;
- Provide input to the decisions made and strategies recommended by the ERST; and
- Coordinate resources and mobilization of resources to the site.

5.0 Resource Management Centers

In the event of an emergency, the incident command center will be set-up as close as reasonably possible to the emergency site in order to maintain control of the emergency and who is present to assist with the emergency. The Incident Commander and On-site Supervisor will be the first two personnel on-site to address the emergency (aside from Operations personnel). At this time, the Incident Commander and on-site Supervisor will (as required):

- Assess the situation;
- Develop and direct the implementation of strategies for achieving the emergency response objective (e.g., evacuation, shelter-in-place);
- Identify the "hot zone" and declare when the responders may enter it;
- Establish objectives and priorities;
- Determine needs and request additional resources from the Facility Manager;
- Manage emergency response resources;
- Ensure that the ERP is implemented;
- Monitor changing conditions and modify strategies accordingly;
- Ensure that planning meetings are scheduled as required;
- Ensure that people inside the hot zone are accounted for, and/or initiate a search if required;
- Develop and approve the implementation of an action plan;
- Determine information needs and advise the Facility Manager of current strategies;
- Advise the Facility Manager of when the field response is complete; and
- Participate in a debriefing.

The Facility Manager will (as required):

- Make key decisions;
- Provide technical information required for the emergency;
- Establish communications with the Incident Commander;
- Procure and approve the use of resources required for safety and mitigation;
- Monitor the effectiveness of the response;
- Liaise with governmental bodies and other organizations;
- Establish long-term mitigation objectives and plans;
- Gather information and keep records related to the emergency;
- Coordinate the timely provision of information to the public and affected employees;
- Coordinate and communicate with the Incident Commander via mobile phone; and
- If evacuation is required, appoint the Environment and Regulatory Coordinator to activate an evacuation center outside the EPZ (not necessary if shown they can manage effectively without one).

5.1 SITE CONTROL & SECURITY

The Incident Commander will appoint the On-Site Supervisor to (as required):

- Arrange for and set-up perimeters and establish site control;
- Track all responders at the site;
- Identify all hazards at the site;

- Ensure that all persons at the emergency response site are provided with the appropriate personal protective equipment;
- Monitor the individuals and the environment;
- Arrange emergency medical care to anyone requiring attention;
- Assist with site evacuation and rescue plans;
- Convey communications and warning protocols issued by the Incident Commander;
- Outline plans for partial or full decontamination of the emergency response personnel;
- Ensure that rest periods and rehabilitation services for responders are provided for; and
- Establish site security.

5.2 FACILITY SPILL CONTROL

In the event of a spill at the facility, operations staff should be aware of all information pertaining to the procedures and locations of key isolation points for utilities shut off, spill control procedures and locations of spill control points. Location and operation of emergency protective equipment will be located on the Proposed Site Map, found as Figure 1.

6.0 ERP Maintenance and Review

6.1 INTERNAL PROCEDURES

The Facility Manager is responsible for the preparation of site-specific emergency response procedures. The Facility Manager is responsible for staff training of the emergency response procedures.

6.2 ANNUAL REVIEW

At a minimum, this plan will be reviewed annually through the use of appropriate and planned emergency exercises. Following the exercises, appropriate debriefing sessions and the completion of debriefing reports; the information gathered will be used to make appropriate changes to the ERP.

6.3 AMENDMENTS

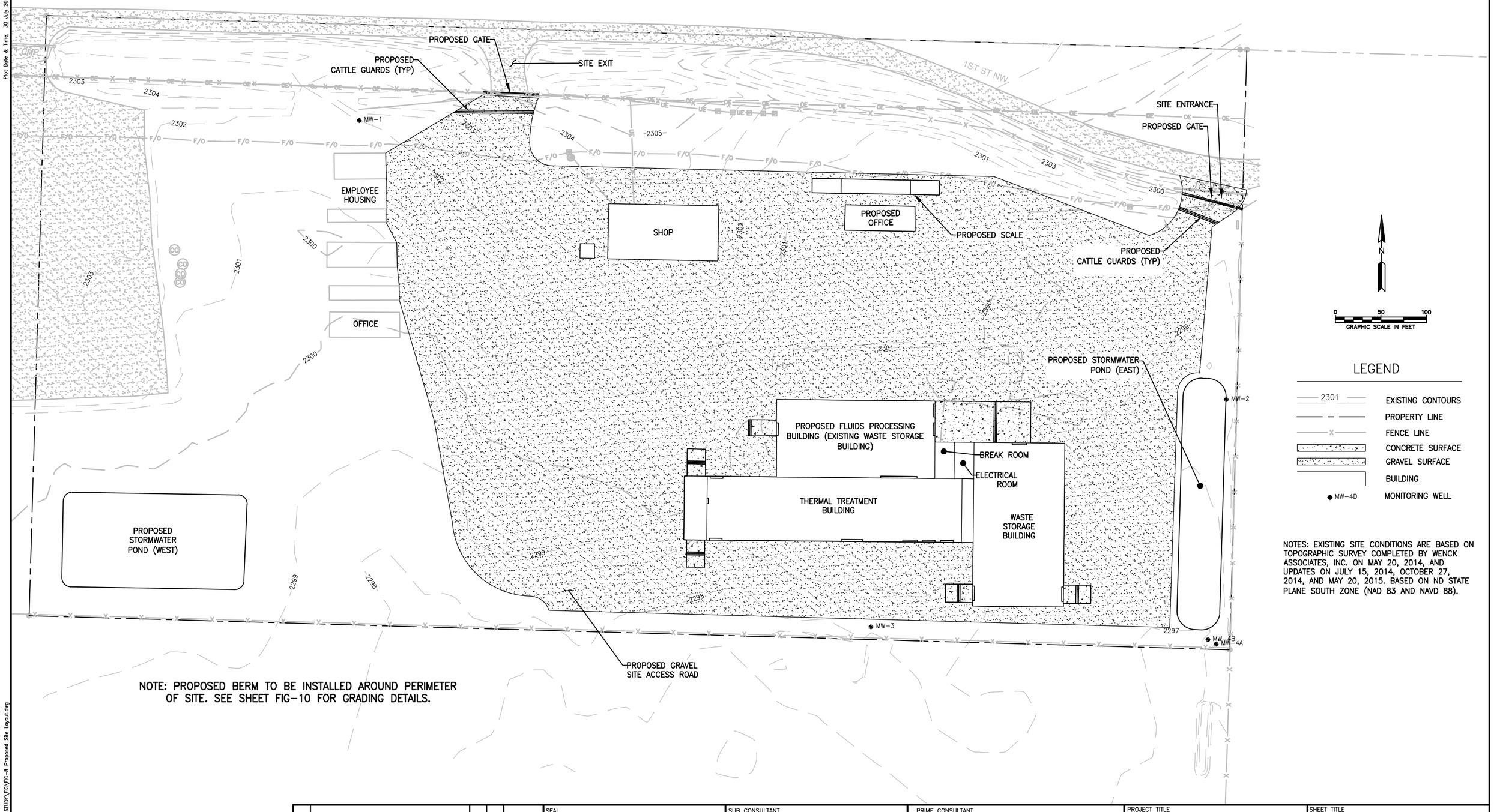
Amendments to the ERP require formal documentation and approval. Formal approval is not required for minor changes or revisions to the appendices, or minor administrative changes, such as editorial changes to the text including page numbering, section-numbering reference changes, or changes to State (NDDH or NDIC) statutes.

6.4 FLEXIBILITY

No Emergency Response Plan can anticipate all of the varied emergency situations that may arise. During the course of the implementation of this plan in an emergency situation, Renewable Resources employees conducting their assigned roles and responsibilities may exercise flexibility. To ensure that the health, safety and welfare of the community are paramount in the emergency response, minor deviations from the emergency response plan may be permitted.

Figures

Plot Date & Time: 30 July 2015 2:51 PM



LEGEND

- 2301 — EXISTING CONTOURS
- PROPERTY LINE
- FENCE LINE
- CONCRETE SURFACE
- GRAVEL SURFACE
- BUILDING
- MW-4D — MONITORING WELL

NOTES: EXISTING SITE CONDITIONS ARE BASED ON TOPOGRAPHIC SURVEY COMPLETED BY WENCK ASSOCIATES, INC. ON MAY 20, 2014, AND UPDATES ON JULY 15, 2014, OCTOBER 27, 2014, AND MAY 20, 2015. BASED ON ND STATE PLANE SOUTH ZONE (NAD 83 AND NAVD 88).

NOTE: PROPOSED BERM TO BE INSTALLED AROUND PERIMETER OF SITE. SEE SHEET FIG-10 FOR GRADING DETAILS.

REV	REVISION DESCRIPTION	DWN	APP	REV DATE

SEAL

SUB CONSULTANT

PRIME CONSULTANT

WENCK ASSOCIATES
Responsive partner. Exceptional outcomes.
3303 FIECHTNER DRIVE FARGO, NORTH DAKOTA
(701) 297-9600 (701) 297-9601

PROJECT TITLE
TENORM APPLICATION

RENEWABLE RESOURCES, LLC

KILLDEER, NORTH DAKOTA

SHEET TITLE
PROPOSED SITE LAYOUT

DWN BY	CHK'D	APP'D	DWG DATE
EBH	AJF	AJF	JULY 2015

SCALE AS SHOWN

PROJECT NO. 2522-04

SHEET NO. FIGURE 1

REV NO.

U:\Drafting\2522\000A\02- PILOT STUDY\FIG\FIG-8 Proposed Site Layout.dwg

Appendix A

Near Miss / Incident / Investigation Report

Renewable Resources, LLC	NEAR MISS / INCIDENT / INVESTIGATION REPORT

Date: _____ Time: _____ ☐ AM ☐ PM Facility: _____

What happened?

_____

_____

_____

_____

_____

Who was involved?

_____

_____

Where did it happen?

_____

Who was it reported to? (Name & Phone Number)

_____

MANAGERS COMMENTS

What were the underlying/root causes?

_____

_____

_____

What corrective action is required, and how can similar incidents be prevented in the future?

_____

_____

_____

Recommendations for further action:

_____

_____

_____

Completed by: _____ Signature: _____

Date: _____

WENCK
ASSOCIATES

Responsive partner.
Exceptional outcomes.

Toll Free: 800-472-2232 **Email: wenckmp@wenck.com** **Web: wenck.com**

MINNESOTA
Maple Plain
763-479-4200
Golden Valley
763-252-6800
Windom
507-831-2703
New Hope
800-368-8831
Woodbury
651-294-4580

COLORADO
Denver
602-370-7420

GEORGIA
Roswell
678-987-5840

NORTH DAKOTA
Fargo
701-297-9600
Mandan
701-751-3370
Dickinson
800-472-2232

SOUTH DAKOTA
Pierre
605-222-1826

WYOMING
Cheyenne
307-634-7848
Sheridan
307-675-1148

Attachment 5

Proposed Site Layouts

PROPOSED GATE
PROPOSED CATTLE GUARDS (TYP)
SITE EXIT
1ST ST NW
SITE ENTRANCE
PROPOSED GATE
MW-1
EMPLOYEE HOUSING
SHOP
PROPOSED OFFICE
PROPOSED SCALE
PROPOSED CATTLE GUARDS (TYP)
OFFICE
PROPOSED STORMWATER POND (EAST)
MW-2
PROPOSED FLUIDS PROCESSING BUILDING (EXISTING WASTE STORAGE BUILDING)
BREAK ROOM
ELECTRICAL ROOM
THERMAL TREATMENT BUILDING
WASTE STORAGE BUILDING
PROPOSED STORMWATER POND (WEST)
MW-3
MW-4B
MW-4A
PROPOSED GRAVEL SITE ACCESS ROAD

NOTE: PROPOSED BERM TO BE INSTALLED AROUND PERIMETER OF SITE.

N

0 50 100
GRAPHIC SCALE IN FEET

LEGEND

- 2301 — EXISTING CONTOURS
- PROPERTY LINE
- FENCE LINE
- CONCRETE SURFACE
- GRAVEL SURFACE
- BUILDING
- MW-4D — MONITORING WELL

NOTES: EXISTING SITE CONDITIONS ARE BASED ON TOPOGRAPHIC SURVEY COMPLETED BY WENCK ASSOCIATES, INC. ON MAY 20, 2014, AND UPDATES ON JULY 15, 2014, OCTOBER 27, 2014, AND MAY 20, 2015. BASED ON ND STATE PLANE SOUTH ZONE (NAD 83 AND NAVD 88).

REV	REVISION DESCRIPTION	DWN	APP	REV DATE

SEAL

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PROJECT TITLE
TENORM APPLICATION

RENEWABLE RESOURCES, LLC

KILLDEER, NORTH DAKOTA

SHEET TITLE
PROPOSED SITE LAYOUT

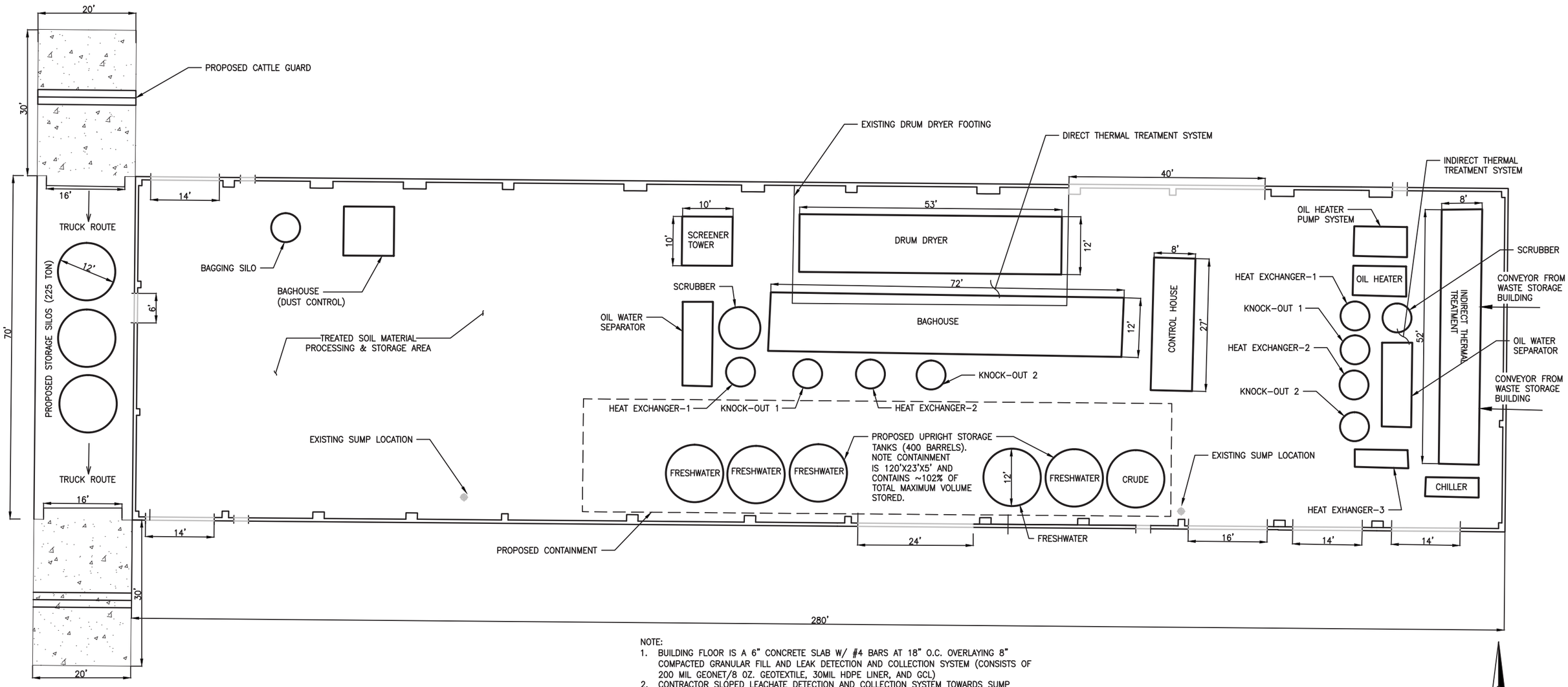
DWN BY	CHK'D	APP'D	DWG DATE
EBH	AJF	AJF	AUG 2015

SCALE AS SHOWN

PROJECT NO. 2522-10

SHEET NO. FIGURE 2

REV NO.



NOTE:

1. BUILDING FLOOR IS A 6" CONCRETE SLAB W/ #4 BARS AT 18" O.C. OVERLAYING 8" COMPACTED GRANULAR FILL AND LEAK DETECTION AND COLLECTION SYSTEM (CONSISTS OF 200 MIL GEONET/8 OZ. GEOTEXTILE, 30MIL HDPE LINER, AND GCL)
2. CONTRACTOR SLOPED LEACHATE DETECTION AND COLLECTION SYSTEM TOWARDS SUMP LOCATIONS AT A MINIMUM OF 0.5% AND SLOPED AWAY FROM ENTRANCE DOORS (SEE SHEET D-04)
3. IN-FLOOR HEAT SYSTEM INSTALLED UNDERNEATH CONCRETE FLOOR.
4. DRUM DRYER FOOTING IS 18" THICK AND UNDERLAIN BY A 30-MIL HDPE LINER.
5. FLUIDS WILL BE PIPED TO STORAGE TANKS FOR HOLDING AND MARKET.
6. WENCK WAS NOT RESPONSIBLE FOR STRUCTURAL DESIGN OF BUILDING COMPONENTS AS THEY WERE DESIGNED BY SOLIEN & LARSON, PC AND RECOMMENDS THAT ANALYSIS BE COMPLETED PRIOR TO PLACEMENT OF SYSTEM EQUIPMENT.

REV	REVISION DESCRIPTION	DWN	APP	REV DATE

SEAL

SUB CONSULTANT

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WENCK ASSOCIATES
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FARGO, NORTH DAKOTA 58103 (701) 297 9601

PROJECT TITLE
TENORM APPLICATION

RENEWABLE RESOURCES, LLC

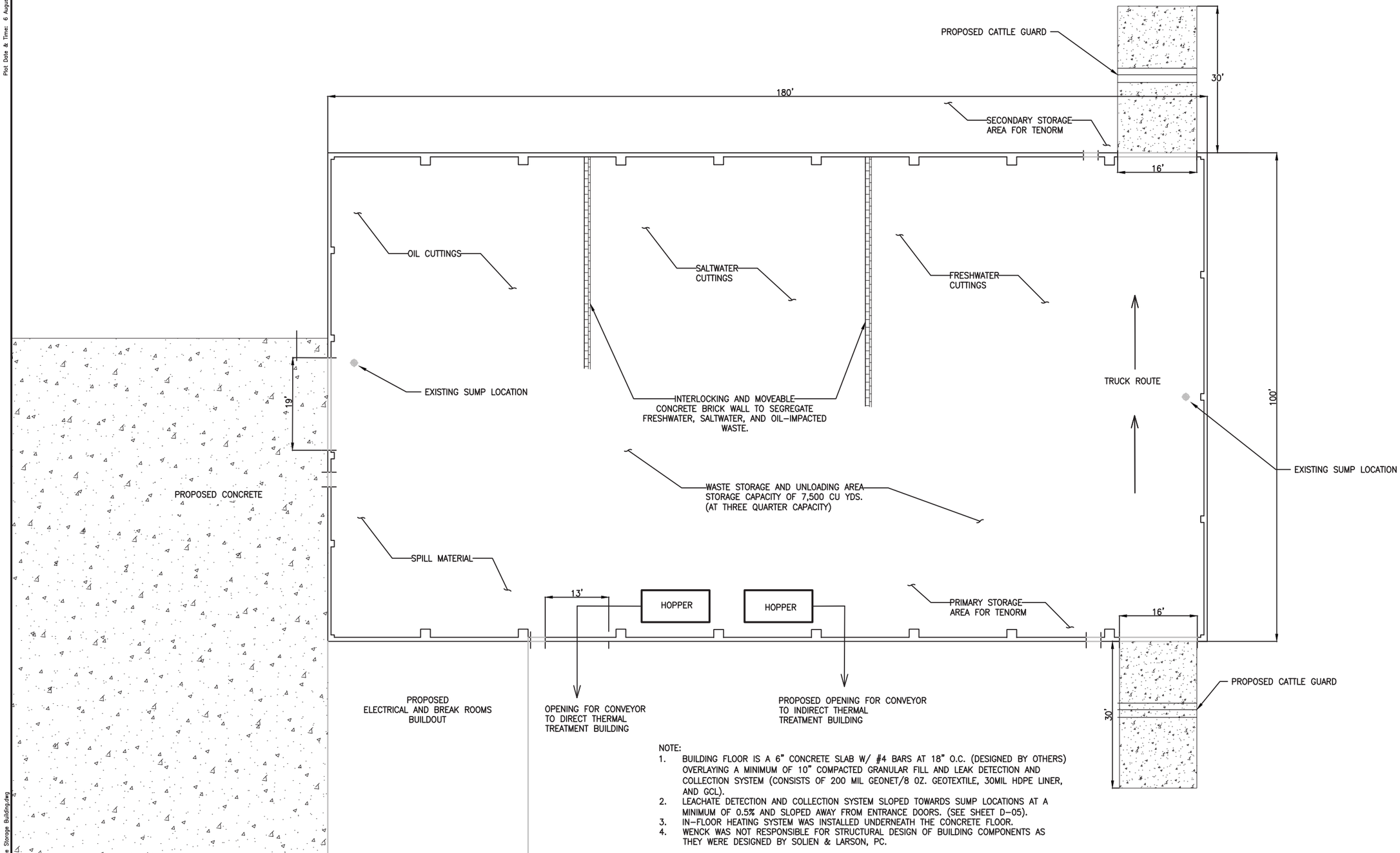
KILLDEER, NORTH DAKOTA

SHEET TITLE
THERMAL TREATMENT BUILDING
PROPOSED LAYOUT

DWN BY	CHK'D	APP'D	DWG DATE
EBH	AJF	AJF	AUG 2015

SCALE AS SHOWN

PROJECT NO.	SHEET NO.	REV NO.
2522-10	FIGURE-3	



NOTE:

1. BUILDING FLOOR IS A 6" CONCRETE SLAB W/ #4 BARS AT 18" O.C. (DESIGNED BY OTHERS) OVERLAYING A MINIMUM OF 10" COMPACTED GRANULAR FILL AND LEAK DETECTION AND COLLECTION SYSTEM (CONSISTS OF 200 MIL GEONET/8 OZ. GEOTEXTILE, 30MIL HDPE LINER, AND GCL).
2. LEACHATE DETECTION AND COLLECTION SYSTEM SLOPED TOWARDS SUMP LOCATIONS AT A MINIMUM OF 0.5% AND SLOPED AWAY FROM ENTRANCE DOORS. (SEE SHEET D-05).
3. IN-FLOOR HEATING SYSTEM WAS INSTALLED UNDERNEATH THE CONCRETE FLOOR.
4. WENCK WAS NOT RESPONSIBLE FOR STRUCTURAL DESIGN OF BUILDING COMPONENTS AS THEY WERE DESIGNED BY SOLIEN & LARSON, PC.

REV	REVISION DESCRIPTION	DWN	APP	REV DATE

SEAL

SUB CONSULTANT

PRIME CONSULTANT
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PROJECT TITLE
TENORM APPLICATION

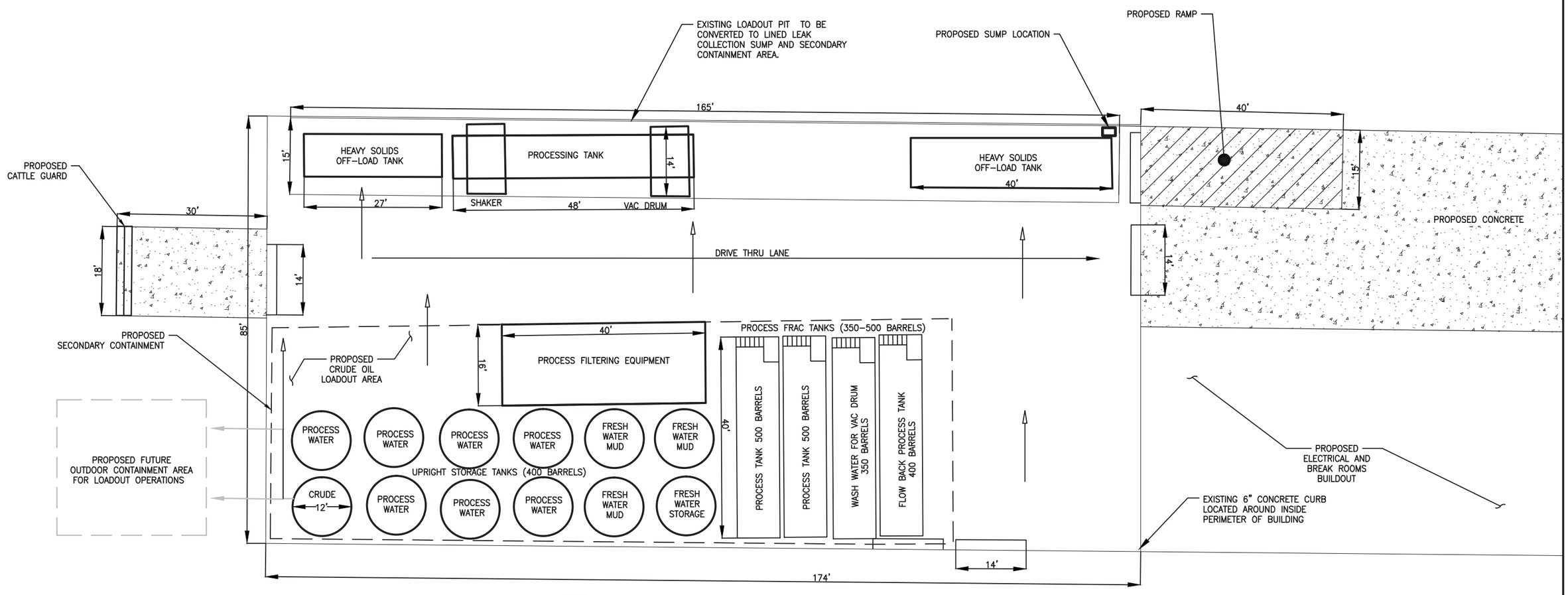
RENEWABLE RESOURCES, LLC

KILLDEER, NORTH DAKOTA

SHEET TITLE
WASTE STORAGE BUILDING PROPOSED LAYOUT

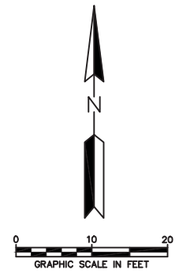
DWN BY	CHK'D	APP'D	DWG DATE	AUG 2015
EBH	AJF	AJF	SCALE	AS SHOWN

PROJECT NO.	SHEET NO.	REV NO.
2522-10	FIGURE-4	



NOTE:

1. EXISTING CONCRETE FLOOR WILL BE USED. REPAIRS WILL BE MADE TO THE EXISTING CONCRETE FLOOR INCLUDING SEALING ANY CRACKS.
2. FLOOR SLOPED TOWARDS EXISTING LOADOUT PIT. →
3. PROPOSED LOADOUT AREA WILL BE BUILT TO CONDUCT LOADOUT OPERATIONS INSIDE BUILDING AND EXPAND OUTSIDE IN THE FUTURE. OUTSIDE LOADING AREA WILL HAVE A CONTAINMENT AREA TO MANAGE ANY SPILLAGE.
4. WENCK WAS NOT RESPONSIBLE FOR STRUCTURAL DESIGN OF BUILDING COMPONENTS AS THEY WERE DESIGNED BY SOLIEN & LARSON, PC AND RECOMMENDS THAT ANALYSIS BE COMPLETED PRIOR TO PLACEMENT OF SYSTEM EQUIPMENT.
5. TANK SECONDARY CONTAINMENT WALL WILL BE APPROXIMATELY 136' X 43' X 4.5'.



REV	REVISION DESCRIPTION	DWN	APP	REV DATE

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PROJECT TITLE

TENORM APPLICATION

RENEWABLE RESOURCES, LLC

KILLDEER, NORTH DAKOTA

SHEET TITLE

PROPOSED FLUIDS PROCESSING BUILDING LAYOUT

DWN BY	CHK'D	APP'D	DWG DATE
EBH	AJF	AJF	AUG 2015

SCALE AS SHOWN

PROJECT NO. 2522-10

SHEET NO. FIGURE-5

REV NO.

FLUIDS PROCESSING

>25% SOLIDS CONTENT
FROM TRUCK

VACUUM TRUCK FLUIDS
FROM TRUCK

SHAKER TABLE

OFF–LOAD STORAGE TANK

PROCESSING AGITATION TANK

VAC DRUM

FLUIDS

STORAGE TANKS

RECOVERED CRUDE

RECOVERED CRUDE
TO MARKET BY TRUCK

WATER

FILTRATION

STORAGE TANKS

TREATED WATER
TO DISPOSAL BY TRUCK

SOLIDS

SOLIDS

THERMAL TREATMENT

FRESHWATER CUTTINGS
FROM TRUCK

SALTWATER CUTTINGS
FROM TRUCK

OIL CUTTINGS
FROM TRUCK

INDUSTRIAL/SPILL MATERIAL WASTE
FROM TRUCK

WASTE STORAGE BUILDING

CLASSIFICATION/ GRINDING

OIL CUTTINGS

INDIRECT THERMAL TREATMENT
HOPPER/ CONVEYOR

DIRECT THERMAL TREATMENT
HOPPER/ CONVEYOR

FRESHWATER CUTTINGS
SALTWATER CUTTINGS
INDUSTRIAL/SPILL MATERIAL WASTE

GASES

VAPOR RECOVERY SYSTEM

GAS RECIRCULATION

INDIRECT THERMAL TREATMENT

RECOVERED WATER

STORAGE TANKS

RECOVERED WATER
TO MARKET BY TRUCK

SOLIDS

RECOVERED CRUDE OIL/DIESEL

STORAGE TANKS

RECOVERED OIL
TO MARKET BY TRUCK

DRUM DRYER

SOLIDS

SCREENER

STORAGE SILOS

FRESHWATER–BASED
SALTWATER–BASED
OIL–BASED
INDUSTRIAL/SPILL MATERIAL–BASED

TREATED SOIL MATERIAL BYPRODUCT
TO REUSE OR DISPOSAL BY TRUCK

BYPRODUCT (GRAVEL/ROCK) STORAGE

GRAVEL BYPRODUCT
TO REUSE BY TRUCK

GASES

BAGHOUSE

VAPOR RECOVERY SYSTEM

STORAGE TANKS

RECOVERED WATER
TO MARKET BY TRUCK

GAS RECIRCULATION

C

REV	REVISION DESCRIPTION	DWN	APP	REV DATE

SEAL

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WENCK ASSOCIATES
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3303 FIECHTNER DRIVE (701) 297–9600
FARGO, NORTH DAKOTA 58103 (701) 297–9601

PROJECT TITLE
TENORM APPLICATION

RENEWABLE RESOURCES, LLC

KILLDEER, NORTH DAKOTA

SHEET TITLE
PROCESS FLOW DIAGRAM

DWN BY	CHK'D	APP'D	DWG DATE
EBH	AJF	AJF	AUG 2015

SCALE NOT TO SCALE

PROJECT NO.	SHEET NO.	REV NO.
2522–10	FIGURE–6	A

Attachment 6

Certificate of Authority

State of North Dakota

SECRETARY OF STATE

CERTIFICATE OF ORGANIZATION OF

RENEWABLE RESOURCES, LLC
Secretary of State ID#: 30,911,000

The undersigned, as Secretary of State of the State of North Dakota, hereby certifies that Articles of Organization for

RENEWABLE RESOURCES, LLC

duly signed and executed pursuant to the provisions governing a North Dakota Limited Liability Company, have been received in this office and are found to conform to law.

ACCORDINGLY the undersigned, as such Secretary of State, and by virtue of the authority vested in him by law, hereby issues this Certificate of Organization to

RENEWABLE RESOURCES, LLC

Effective date of organization: February 17, 2012

Issued: February 17, 2012

Alvin A. Jaeger
Secretary of State

Attachment 7

TENORM Licensing Guidance

Application for Radioactive Material License (RAM) for TENORM

Item No.	Title and Criteria	Use Table(s) Below	Description Attached
5	**RADIOACTIVE MATERIAL** **Sealed Sources and Devices** • Identify each radionuclide that will be used in each sealed source/device. • Identify the manufacturer or distributor and model number of each sealed source/device. • Confirm that each sealed source/device combination is listed and approved in the SSD registry for the purpose intended. • Confirm that the activity per source/maximum activity per device specified in the SSD registration certificate will not be exceeded.	☑ ☑ ☑ ☑	

Sealed Sources				
Radioisotope	**Manufacturer/ Model No.**	**Quantity**	**Yes**	**No**
		Not to exceed the maximum activity per source/device as specified in the Sealed Source and Device Registration Sheet		☑
		Not to exceed the maximum activity per source/device as specified in the Sealed Source and Device Registration Sheet		☑
		Not to exceed the maximum activity per source/device as specified in the Sealed Source and Device Registration Sheet		☑

Source Material	
Depleted Uranium	Kilograms
Uranium-238	Kilograms
Thorium-232	Kilograms
Other: Specify	Kilograms

Special Nuclear Material				
Radioisotope	**Manufacturer/ Model No.**	**Quantity**	**Yes**	**No**
Uranium-234 Uranium-235 Plutonium-238 Plutonium-239 Other: Specify		Not to exceed the maximum activity per source/device as specified in the Sealed Source and Device Registration Sheet		☑ ☑ ☑ ☑ ☑

Unsealed or Uncontained Materials

Identify each individual isotope requested:

Unsealed or Uncontained Materials					
Radioisotope	**Chemical or Physical Form**				**Total Activity Requested**
Ra-226	Gas	☑ Liquid	☑ Solid	Other: Specify	100 ton
Ra-228	Gas	☑ Liquid	☑ Solid	Other: Specify	100 ton
	Gas	Liquid	Solid	Other: Specify	
	Gas	Liquid	Solid	Other: Specify	

OR

Identify your request for Type B or Type C quantities of material by filling out the table below:

Radioisotope	Yes	No
• Any radioisotope identified in 10 CFR 33.100, Schedule A, Column I — (Type B License of Broad Scope) **OR** • Any radioisotope identified in 10 CFR 33.100, Schedule A, Column II — (Type C License of Broad Scope)		

AND IF APPLICABLE

Identify *individual isotopes* identified in 10 CFR 33.100 Schedule A, Column I or II, that requested quantities exceeding amounts authorized in Column I or II.

Radioisotope	Chemical or Physical Form				Total Activity Request
	Gas	Liquid	Solid	Other: Specify	
	Gas	Liquid	Solid	Other: Specify	
	Gas	Liquid	Solid	Other: Specify	
	Gas	Liquid	Solid	Other: Specify	

And

Identify any uncontained source or special nuclear materials that should be included in the license:

Source Material	
Depleted Uranium	Kilograms
Uranium-238	Grams
Thorium-232	Grams
Other:	Grams
Special Nuclear Material Less than Critical Mass Quantities	
Uranium-234	Grams
Uranium-235	Grams
Plutonium-238	Grams
Plutonium-239	Grams

For those individuals who will provide commercial services on sealed sources/devices and will be required to *take possession of materials incident to providing services*:

Sealed Sources/Devices Possessed Incident to Providing Services				
Radioisotope	**Manufacturer/ Model No.**	**Quantity**	**Yes**	**No**
		Not to exceed the maximum activity per source/device as specified in the Sealed Source and Device Registration Sheet		☑
		Not to exceed the maximum activity per source/device as specified in the Sealed Source and Device Registration Sheet		☑

Source Material	
Uranium-238	Kilograms
Thorium-232	Grams
Other:	Grams
Depleted Uranium	Grams

Special Nuclear Material Less than Critical Mass Quantities	
Uranium-234	Grams
Uranium-235	Grams
Plutonium-238	Grams
Plutonium-239	Grams

For those individuals who will provide commercial services involving unsealed or uncontained material and will be required to take possession of these materials incident to providing services:

Unsealed or Uncontained Materials

Identify each individual isotope requested:

Radioisotope	Chemical or Physical Form				Total Activity Request
	Gas	Liquid	Solid	Other: Specify	
	Gas	Liquid	Solid	Other: Specify	
	Gas	Liquid	Solid	Other: Specify	
	Gas	Liquid	Solid	Other: Specify	

OR

Identify your request for Type B or Type C quantities of materials by filling out the table below:

Radioisotope	Yes	No
• Any radioisotope identified in 10 CFR 33.100, Schedule A, Column I — (Type B License of Broad Scope) **OR** • Any radioisotope identified in 10 CFR 33.100, Schedule A, Column II — (Type C License of Broad Scope)		

AND IF APPLICABLE

Identify *individual isotopes* identified in 10 CFR 33.100 Schedule A, Column I or II, that requested quantities exceeding amounts authorized in Column I or II.

Radioisotope	Chemical or Physical Form				Total Activity Request
	Gas	Liquid	Solid	Other: Specify	
	Gas	Liquid	Solid	Other: Specify	
	Gas	Liquid	Solid	Other: Specify	
	Gas	Liquid	Solid	Other: Specify	

And

Identify any uncontained source or special nuclear materials that should be included in the license:

Source Material	
Depleted Uranium	Kilograms
Uranium-238	Grams
Thorium-232	Grams
Other:	Grams
Special Nuclear Material Less than Critical Mass Quantities	
Uranium-234	Grams
Uranium-235	Grams
Plutonium-238	Grams
Plutonium-239	Grams

Item No.	Title and Criteria	Yes	No	N/A	Description Attached
5	**RADIOACTIVE MATERIAL** **Financial Assurance and Recordkeeping For Decommissioning** • Pursuant to 10 CFR 30.35(g), we shall maintain drawings and records important to decommissioning and transfer these records to a new licensee before licensed activities are transferred, or assign the records to the appropriate NRC Regional Office before the license is terminated. **OR** • If financial assurance is required, submit evidence.	☑			☑

Item No.	Title and Criteria	Yes	No	N/A	Description Attached
6	**PURPOSE(S) FOR WHICH LICENSED MATERIAL WILL BE USED** • Leak Test Analysis • Environmental Sample Analysis • Instrument/Dosimeter Calibration • Instruction **Possession Incident to Performing the Following Services on Sealed Sources and Devices** • Installation • Radiation Surveys • Removal • Disposal • Relocation • Repair • Source Exchange • Routine Maintenance • Non-routine Maintenance • Source Retrieval • Transportation • Packaging • Leak Test Sample Acquisition • Customer Training • Other Services not identified above, excluding activities involving critical mass quantities of special nuclear material: Specify.		☑ ☑ ☑ ☑	☑	

6	**PURPOSE(S) FOR WHICH LICENSED MATERIAL WILL BE USED** **Possession Incident to Performing Commercial Services Utilizing Unsealed or Uncontained Licensed Material:** **Nuclear Laundry** Waste Management Services: • Commercial Incineration • Commercial Compaction/Super Compaction • Commercial Solidification/Vitrification • Packaging, Repackaging, and Transportation of Radioactive Waste • Decontamination • Decommissioning • Site Characterization • Radiation protection or health physics training and instruction • Other Services not identified above, excluding activities involving critical mass quantities of special nuclear material: Specify.		☑ ☑ ☑ ☑ ☑ ☑ ☑ ☑ ☑	☑	

Item No.	Title and Criteria	Yes	No	N/A	Description Attached
7	**INDIVIDUAL(S) RESPONSIBLE FOR RADIATION SAFETY PROGRAM AND THEIR TRAINING EXPERIENCE** **Radiation Safety Officer** • The name of the proposed RSO: **AND EITHER** • The specific training and experience of the RSO; **OR** • Alternative information demonstrating that the proposed RSO is qualified by training and experience, e.g., listed by name as an authorized user or the RSO on an NRC or Agreement State license that requires a radiation safety program of comparable size and scope.	☑			☑

Item No.	Title and Criteria	Yes	No	N/A	Description Attached
8	**TRAINING FOR INDIVIDUALS WORKING IN OR FREQUENTING RESTRICTED AREAS** **Authorized Users** • "Before using licensed material, authorized users will receive the training described in Appendix H of NUREG-1556, Vol. 18, 'Consolidated Guidance About Materials Licenses: Program-Specific Guidance About Service Provider Licenses,' dated November 2000." **OR** • A description of the training and experience for proposed authorized users. **Ancillary Personnel** • "Before using licensed materials, ancillary personnel will have successfully completed the classroom training portion of the training course described in Appendix H of NUREG-1556, Vol. 18, 'Consolidated Guidance About Materials Licenses: Program-Specific Guidance About Service Provider Licenses,' dated November 2000." **OR** • A description of the radiation safety training program, including topics covered, groups of workers, assessment of training, qualifications of instructors, and the method and frequency of training.				☑ ☑ ☑

Item No.	Title and Criteria	Yes	No	N/A	Description Attached
9	**FACILITIES AND EQUIPMENT** **Permanent Facilities Specifically Identified on the License**				
	• Leak Test and Environmental Sample Analysis Providers: No response required for facilities. (Equipment is discussed in Item 10, Radiation Safety Program.)	No Response is Necessary for this Section			
	• Instrument Calibration: If only sealed sources are possessed in registered devices designed to emit acollimated beam for the purpose of instrument calibration, no response required. (Equipment is discussed in Item 10, Radiation Safety Program.)	No Response is Necessary for this Section			
	• Services that involve handling of sealed sources in a shielded container: No response required. (Equipment is discussed in Item 10, Radiation Safety Program.)	No Response is Necessary for this Section			
	• Services that involve handling of sealed sources outside a shielded container: – Submit a drawing or sketch of the proposed permanent facility identifying areas where radioactive materials, including radioactive wastes, will be used or stored. – Show in the drawings the relationship and distance between restricted areas and adjacent unrestricted areas. – Specify in the drawings shielding materials (concrete, lead, etc.) and means for securing radioactive materials from unauthorized removal. – Drawings, sketches, diagrams, etc. should indicate the scale or include dimensions on each drawing or sketch. – Describe engineered safety systems, e.g., area monitors, interlocks, alarms, etc.		☑		

Item No.	Title and Criteria	Yes	No	N/A	Description Attached
9	**FACILITIES AND EQUIPMENT (*Cont'd*.)** **Permanent Facilities Specifically Identified on the License Requesting the Use of Unsealed or Uncontained Material**				
	• Leak Test and Environmental Sample Analysis Providers: No response required for facilities. (Equipment is discussed in Item 10, Radiation Safety Program.)	No Response is Necessary for this Section			
	• Other services that involve handling of unsealed radioactive material at permanent facilities or field stations identified on the license:	☑			
	– Describe the permanent facilities and equipment to be made available at each location where unsealed radioactive material will be used or handled.				☑
	– Include a description of the area(s) assigned for the receipt, storage, security, preparation, handling, waste storage and measurement of radioactive materials.				☑
	– Submit a facility diagram showing the proximity of licensed materials to unrestricted areas.				☑
	– Drawings, sketches, diagrams, etc. should indicate the scale, or include dimensions on each drawing or sketch.				☑
	– Submit a diagram, sketch, or drawing, when applicable, that identifies areas where radioactive materials may become airborne. The diagram should contain descriptions of the ventilation systems, with pertinent airflow rates, filtration equipment, sample collection points, and monitoring systems.				☑
	– Submit a diagram of radioactive waste handling equipment that includes incinerators, compactors, solidification equipment, hold-up tanks, sample collection points, etc.				☑

Item No.	Title and Criteria	Yes	No	N/A	Description Attached
9	**FACILITIES AND EQUIPMENT (Cont'd.)** **Permanent Facilities Specifically Identified on the License Requesting the Use of Unsealed or Uncontained Material** – Describe proposed laundry facilities, if applicable, used for contaminated protective equipment and clothing. Specify how the contaminated waste water from the laundry machines or sinks is disposed. Operating and emergency procedures should address decontamination of the laundry area and equipment. – Describe protective clothing (such as rubber gloves, coveralls, respirators, and face shields), auxiliary shielding, absorbent materials, secondary containers for waste water storage for decontamination purposes, plastic bags for storing contaminated items, etc., that will be available. – Identify specialized handling tools, facility interlocks designed to prevent operation of systems in the event that operation of the system could result in accidental exposure or release of material (e.g., HEPA filters, ventilation system, etc.) or equipment.			☑ ☑	☑
	Temporary Job Site Locations • No facility description is required for use of materials at temporary job sites.	Need Not Be Submitted With Application			

Item No.	Title and Criteria	Yes	No	N/A	Description Attached
10	**RADIATION SAFETY PROGRAM** The applicant is required to establish and submit its radiation protection program. Each item listed below should be addressed in the corresponding sections of this guide.				
	• Development and implementation of an ALARA program.	☑			☑
	• Description of equipment and facilities adequate to protect personnel, the public and the environment.	☑			☑
	• Confirmation that licensed activities are conducted only by individuals qualified by training and experience.	☑			☑
	• Development and maintenance of written operating and emergency procedures.	☑			☑
	• Implementation of an audit program to ensure that, at least annually, the radiation safety program is reviewed.	☑			☑
	• Description of organization structure and individuals responsible for ensuring day-to-day oversight of the radiation safety program.	☑			☑
	• Establishment and management of a radiation safety and decommissioning records system.	☑			☑
	• Methods or procedures for preventing the release of contaminated material and equipment.	☑			☑
	• Methods or procedures for preventing personnel contamination. Radiation safety procedures and the authorized users responsibilities unique to each type of service operation requested in the application.	☑			☑
	• Radiation safety procedures.	☑			☑
	• Equipment, techniques, and corresponding radiation safety procedures associated with providing services involving either sealed sources or unsealed materials.	☑			☑
	Audit Program	Need Not Be Submitted With Application			

Item No.	Title and Criteria	Yes	No	N/A	Description Attached
10	**RADIATION SAFETY PROGRAM (Cont'd.)** **Radiation Monitoring Instruments** • A description of the instrumentation described in Section 8.10.2 of NUREG-1556, Vol. 18, "Consolidated Guidance About Materials Licenses: Program-Specific Guidance About Service Provider Licenses," dated November 2000, which will be used to perform required surveys. "We will use instruments that meet the radiation monitoring instrument specifications published in Appendix J of NUREG- 1556, Vol. 18, 'Consolidated Guidance About Materials Licenses: Program-Specific Guidance About Service Provider Licenses,' dated November 2000.' We reserve the right to upgrade our survey instruments as necessary." **OR** • "A description of the instrumentation described in Section 8.10.2 of NUREG-1556, Vol. 18, "Consolidated Guidance About Materials Licenses: Program-Specific Guidance About Service Provider Licenses," dated November 2000, which will be used to perform required surveys. "We will use instruments that meet the radiation monitoring instrument specifications published in Appendix J of NUREG- 1556, Vol. 18, 'Consolidated Guidance About Materials Licenses: Program-Specific Guidance About Service Provider Licenses,' dated November 2000. Additionally, we will implement the model survey meter calibration program published in Appendix J of NUREG- 1556, Vol. 18, 'Consolidated Guidance About Materials Licenses: Program-Specific Guidance About Service Provider Licenses,' dated November 2000. We reserve the right to upgrade our survey instruments as necessary."	☑			☑

Item No.	Title and Criteria	Yes	No	N/A	Description Attached
10	**RADIATION SAFETY PROGRAM (Cont'd.)** **Radiation Monitoring Instruments (Cont'd.)** **OR** • A description of alternative equipment and/or procedures for ensuring that appropriate radiation monitoring equipment will be used during licensed activities and that proper calibration and calibration frequency of survey equipment will be performed. The statement, "We reserve the right to upgrade our survey instruments as necessary," should be added to the response. **Material Receipt and Accountability** • "Ordering licensed material and package receipt and opening will follow the model procedures in Appendix K of NUREG-1556, Vol. 18, 'Consolidated Guidance About Materials Licenses: Program-Specific Guidance About Service Provider Licenses,' dated November 2000." **OR** • Submit a description of procedure(s) for ordering licensed material and package receipt and opening **AND** • For unsealed licensed material, submit a description of procedure(s) for ensuring material accountability.			☑	

Item No.	Title and Criteria	Yes	No	N/A	Description Attached
10	**RADIATION SAFETY PROGRAM (Cont'd.)** **Occupational Dosimetry** • "We will have a prospective evaluation and determine that unmonitored individuals are not likely to receive, in one year, a radiation dose in excess of 10% of the allowable limits in 10 CFR Part 20, or we will monitor individuals in accordance with the criteria in the section entitled 'Occupational Dose' in NUREG-1556, Vol. 18, 'Consolidated Guidance About Materials Licenses: Program-Specific Guidance About Service Provider Licenses,' dated November 2000." **OR** • A description of an alternate method for demonstrating compliance with the referenced regulations. **AND/OR** • Provide a bioassay program when using unsealed radioactive materials. If an applicant elects to provide a bioassay program that is less conservative than recommended in Regulatory Guide 8.20, its rationale should be stated. **AND** • Bioassay programs must include what the applicant considers and acceptable interval or schedule for conducting bioassays, identify action levels or guidelines, and describe specific actions to be taken when action levels are exceeded. Because of the complex nature of bioassay and corresponding data analysis, it is acceptable for applicants to make reference to the procedures in NRC guidance documents.	☑			

Item No.	Title and Criteria	Yes	No	N/A	Description Attached
10	**RADIATION SAFETY PROGRAM (Cont'd.)** **Occupational Dosimetry *(Cont'd.)*** **OR** • Contract with an outside group for bioassay services. Provide a commitment that each vendor is licensed or otherwise authorized by NRC or Agreement State to provide required bioassay services.				
	Public Dose The applicant is not required to, and should not, submit a response to the public dose section during the licensing phase. This matter will be addressed during an inspection.	Need not be submitted with Application			
	Operating and Emergency Procedures • Procedure for obtaining an agreement with customers outlining the responsibilities of both the customer and service provider, when performing service operations at a customer's facility • Instructions for handling and using licensed materials. • Instructions for maintaining security during storage and transportation. • Instructions to keep licensed material under control and immediate surveillance during use. • Steps to take to keep radiation exposures ALARA. • Steps to maintain accountability during use. • Steps to control access to work sites. • Steps to take and whom to contact when an emergency occurs. • Instructions for using remote handling tools when handling sealed sources, except low-activity calibration sources. • Methods and occasions for conducting radiation surveys, including surveys for detecting contamination.	☑ ☑ ☑ ☑ ☑	☑	☑ ☑ ☑ ☑	☑ ☑ ☑ ☑

Item No.	Title and Criteria	Yes	No	N/A	Description Attached
10	**RADIATION SAFETY PROGRAM (Cont'd.)**				
	Operating and Emergency Procedures *(Cont'd.)*				
	• Procedures to minimize personnel exposure during routine use and in the event of an incident, including exposures from inhalation and ingestion of licensed unsealed materials.	☑			☑
	• Methods and occasions for locking and securing stored licensed materials.			☑	
	• Procedures for the implementation and adherence to good health physics practices while performing service operations:	☑			☑
	– Minimization of distance to areas, to the extent practicable, where licensed materials are used and stored			☑	
	– Maximization of survey frequency, within reason, to enhance detection of contamination	☑			☑
	– Segregation of radioactive material in waste storage areas	☑			☑
	– Segregation of sealed sources and tracer materials to prevent cross-contamination			☑	
	– Separation of radioactive material from explosives			☑	
	– Separation of potentially contaminated areas from clean areas by barriers or other controls.	☑			☑
	• Personnel monitoring, including bioassays, and the use of personnel monitoring equipment.	☑			☑
	• Transportation of licensed materials to temporary job sites, packaging of licensed materials for transport in vehicles, placarding of vehicles when needed, and physically securing licensed materials in transport vehicles during transportation to prevent accidental loss, tampering, or unauthorized removal.	☑			☑
	• Procedures for picking up, receiving, and opening packages containing licensed materials, in accordance with 10 CFR 20.1906.			☑	
	• Instructions for maintaining records in accordance with the regulations and the license conditions.	☑			☑

Item No.	Title and Criteria	Yes	No	N/A	Description Attached
10	**RADIATION SAFETY PROGRAM (Cont'd.)** **Operating and Emergency Procedures *(Cont'd.)*** "• Procedures for identifying and reporting to NRC defects and noncompliance as required by 10 CFR 21.21(a) of this chapter. "• Procedures and actions to be taken if a sealed source is ruptured, including actions to prevent the spread of contamination and minimize inhalation and ingestion of licensed materials and actions to obtain suitable radiation survey instruments. "* Instructions for the proper storage and disposal of radioactive waste. "° Procedures to be followed in the event of uncontrolled release of radioactive unsealed licensed material to the environment, including notification of the RSO, NRC, and other Federal and state agencies. "° Procedures for identifying and reporting to NRC defects and noncompliance. See Table 8.4, which describes the typical incident notifications required by NRC regulations.	☑ ☑ ☑ ☑ ☑		☑	☑ ☑ ☑

Item No.	Title and Criteria	Yes	No	N/A	Description Attached
10	**RADIATION SAFETY PROGRAM (Cont'd.)** **Surveys** • "We will survey our facility and maintain J 13 contamination levels in accordance with the survey frequencies and contamination levels published in NUREG-1556, Vol. 18, 'Consolidated Guidance About Materials Licenses: Program-Specific Guidance About Service Provider Licenses,' dated November 2000." ***OR*** • Submit description of alternative method for demonstrating how to evaluate a radiological hazard. **Leak Tests** • "Leak tests, when required by the license, will be performed at intervals approved by NRC or an Agreement State and specified in the Sealed Source and Device Registration Sheet. Leak tests will be performed by an organization authorized by NRC or an Agreement State to provide leak testing services to other licensees or using a leak test kit supplied by an organization authorized by NRC or an Agreement State to provide leak test kits to other licensees and according to the kit supplier's instructions." ***OR*** • "Leak testing will follow the model procedures in Appendix 0 of NUREG-1556, Vol. 18, 'Consolidated Guidance About Materials Licenses: Program-Specific Guidance About Service Provider Licenses,' dated November 2000."	☑		☑	☑

Item No.	Title and Criteria	Yes	No	N/A	Description Attached
10	**RADIATION SAFETY PROGRAM (Cont'd.)** **Leak Tests *(Cont'd.)*** **OR** • "Leak testing procedures and analysis will be done by the applicant." Provide the information in supporting a request to perform leak testing. Appendix 0 of NUREG-1556, Vol. 18, "Consolidated Guidance About Materials Licenses: Program-Specific Guidance About Service Provider Licenses," dated November 2000, may serve as guidance. **OR** • "We will provide commercial leak test kits as E E E described in the model leak test kit description in Section 8.9.8 of NUREG-1556, Vol. 18, 'Consolidated Guidance About Materials Licenses: Program-Specific Guidance About Service Provider Licenses,' dated November 2000." **AND** • "We will provide leak test kits as described in the model leak test kit description in Section 8.9.8 of NUREG-1556, Vol. 18." * Provided is a sample of the leak test kits that will be distributed commercially for each type of sealed source/device combination we plan to provide.				

Item No.	Title and Criteria	Yes	No	N/A	Description Attached
10	**RADIATION SAFETY PROGRAM (Cont'd.)** **Maintenance** • "We will implement and maintain procedures for conducting routine maintenance of our device according to each manufacturer's (or distributor's) written recommendations and instructions." **OR** • "Alternative procedures are provided for NRC's review. • "We will have the device manufacturer (or distributor) or other person authorized by NRC or an Agreement State to perform non-routine maintenance on our devices." **OR** • "Information requested in Appendix P of NUREG- 1556, Vol. 18, "Consolidated Guidance About Materials Licenses: Program-Specific Guidance About Service Provider Licenses," dated November 2000, is provided to support requests to conduct non-routine maintenance procedures.			☑	
	Minimization of Contamination • NRC will consider that the criteria for minimization of contamination has been met if the applicant's responses satisfy the criteria in the following sections: "Radioactive Material -Unsealed and/or Sealed Sources," "Facilities and Equipment," "Radiation Safety Program -Safe Use of Radioisotopes and Emergency Procedures," "Radiation Safety Program -Surveys," and "Radiation Safety Program -Waste Management."	No Response is Necessary for this Section			

Item No.	Title and Criteria	Yes	No	N/A	Description Attached
10	**RADIATION SAFETY PROGRAM (Cont'd.)**				
	Transportation No response is needed from applicants during the licensing phase.	No Response is Necessary for this Section			
	Waste Management • "We will use the model waste procedures published in Appendix N of NUREG-1556, Vol. 18, 'Consolidated Guidance About Materials Licenses: Program-Specific Guidance About Service Provider Licenses,' dated November 2000." * If the applicant wishes to use only selected model procedures, provide a statement that: "We will use the (specify either: (1) Decay-In-Storage; or (2) Disposal of Liquids Into Sanitary Sewerage) model waste procedures that are published in Appendix N of NUREG-1556, Vol. 18, 'Consolidated Guidance About Materials Licenses: Program-Specific Guidance About Service Provider Licenses,' dated November 2000." **OR** * Provided are procedures for waste collection, storage, and disposal by any of the authorized methods described in this section. **OR** • "If access to a radioactive waste burial site is unavailable, the applicant should request authorization for extended interim storage of waste. Applicant should refer to NRC IN 90-09, "Extended Interim Storage of Low-Level Radioactive Waste by Fuel Cycle and Materials Licensees," dated February 1990, for guidance if extended storage is required.	☑			☑

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